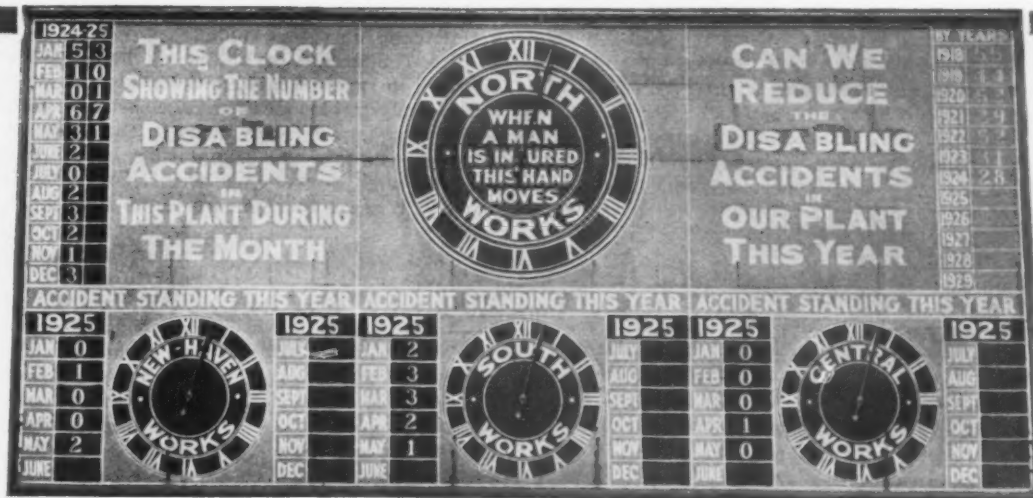


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Putting a Premium on Safety

Each Year Sees Fewer Accidents at the American Steel & Wire Co. Plants—A Persistent Anti-Accident Campaign

BY JOHN NELSON

THE experience of recent years at the Worcester (Mass.) works of the American Steel & Wire Co. has demonstrated that no matter how well organized and well conducted a system of accident prevention and of the handling of accident cases may be, persistent and stimulating effort will produce, year after year, further decrease in number of accidents and days lost to industry because of them.

Previous to 1917, when the present system of classification of accidents was established, the Worcester works had accomplished tremendous things in reducing the menace of accident. As in other plants of the same character the death and maiming of workmen used to be considered inevitable adjuncts of manufacturing. Philanthropy was exercised to relieve the distress resulting from accidents, but the idea of their prevention existed in most industrial establishments only in an untried or crude way. Finally, hardly a quarter of a century ago, the movement toward reducing industrial hazard had its beginning, and the Worcester works, in common with all plants of the United States Steel Corporation, entered upon an era of intensive effort to make industry as safe as it could be in the face of carelessness, ignorance and recklessness. As a consequence, eight years ago so much had been accomplished that most observers believed success could not be carried much further.

The Worcester works, comprising the large north and south works and the smaller central works, and employing an average of about 5000 men, had 334 accidents in 1917, involving 7491 lost days. In 1924 there were 57 accidents, involving 4007 lost days. In the eight years the number of accidents dwindled 83 per cent, the number of lost days 47 per cent.

Considering the nature of the wire industry, with its very considerable natural hazard, the low accident rate of 1.47 per 100 employees per year is worthy of

comment. It is the more extraordinary when it is considered that only eight years earlier the rate was 5.71 per 100 employees. By a lost time accident is meant one which causes the absence of an employee from his work one day. If a man is hurt and leaves his task for the remainder of the day the accident does not go on the record. If, however, he is not on the job the next day, his case is reckoned as a disabling accident.

The table on page 270 shows the number of accidents, number of days lost, and number of accidents per 100 employees for the eight years ending with 1924.

The figures show clearly the increasing value of the system. In two instances, between 1919 and 1920 and between 1923 and 1924, a slight upward reaction will be noted. But, generally speaking, the downward trend has been constant.

The eight-year period has seen a marked decrease in the number of fatal accidents. But the really great decrease, so far as number is concerned, has been in minor accidents of a character to disable workers for a few days only. These were numerous as late as 1917, which fact accounts, in spite of the lower number of very serious accidents in 1924, for the high average of 70 lost time days per accident in that year. In 1917 the average was only 22 days.

When the Steel Corporation started on its safety campaign workmen's compensation had not yet replaced employers' liability. In fact, compensation, though in process of establishment in Great Britain, had not been projected as a statute in any American State. The liability of the owner was still well-defined by the law, damages could be recovered against him in case of an accident in his works only where the responsibility was proved to be his or that of his agent, and never when the fault lay with the victim or a fellow workman of the victim.

The incentive from a direct money standpoint to

make an industry safer was not great, as men looked at it in those days. The important indirect results on shop organization, labor turnover and morale were not realized by most employers. They had yet to learn that to make manufacturing a safe employment was to make money for the employee as well as for the owner.

Finally, however, broad-visioned men in industry came to the conclusion that this disregard of the safety of employees during working hours was an expensive mistake. Among these men were officials of the United States Steel Corporation and its subsidiaries, including the American Steel & Wire Co. Once the decision was made nearly 25 years ago, what seemed at the time the enormous task of organizing a safety system was undertaken.

Shop hospitals were established, skilled surgeons and trained attendants were secured, engineers were charged with studying shop conditions with a view to safeguarding machinery and otherwise removing unnecessary dangers. Later, the systematized education of employees to cooperate in the plan was begun. Particular attention was given to removing the curse of septic poisoning, many cases of which occurred yearly in the Worcester works alone, sometimes resulting in maiming for life, sometimes in death, even though the original wound was apparently a trifling matter. Today one case of septic poisoning a year has properly come to be regarded as a big, black blot on the works' escutcheon.

How It Worked Out

THE results astonished even the most optimistic champions of this reform. The number of fatalities decreased, as well as accidents generally. The serious nature of after-results was greatly reduced. Blood-poisoning, as men called septic poisoning in those days, began to disappear.

The men soon realized the purpose and value of the sharply enforced shop rule that no matter how trifling an injury might be, even to a mere prick of the skin, the employee must present himself at the works hospital for treatment. The day of the shellac pot, former panacea of all evils of accident even to a minor amputation, had gone for good. The three human frailties, ignorance, carelessness and recklessness, had been reduced to a degree which had been deemed beyond all hope.

In connection with this early work, it should be recalled that the Steel Corporation established a workmen's compensation system of its own long before the principle was embodied in the statutes of American States. The plan was along very much the lines as they exist today. Employers' liability still prevailed, of course; the injured workman could still turn to it. But the private system disregarded it, as well as disregarding the cause of an accident. It made no difference whether the employer, the injured man or a fellow workman was to blame; the victim was paid a considerable fraction of the wage he would have earned had he remained at work, and did the injury cause permanent disability, he was compensated accordingly. In case of his death his dependents were provided for. This system continued to operate, very successfully for all concerned, until State laws substituted their own method of compensation, compelling the abandonment of private enterprise of the same kind. But during its existence it exerted a great influence on the development of safety measures.

The persistent improvement in the matter of accidents at the Worcester works is attributed to several main factors, with other influences playing a less prominent part. The chief causes are:

The operation of finely equipped shop hospitals,

with attendant nurses and surgeons on call, coupled with compulsory treatment of injuries, no matter how trifling; a follow-up of every case until the patient is pronounced cured and able to return to work, or else until it is demonstrated that rehabilitation is impossible; the compulsory physical examination of every worker, in order that weaknesses may be detected which might contribute to make hazard greater, as, for example, defective eyesight; the constant study of works hazards, that they may be eliminated or reduced to a minimum. In this connection the cause of every accident is sought and the responsibility fixed so that a repetition may be avoided.

Most important of all, in its bearing upon results obtained in recent years, is the education of employees, particularly in keeping alive a keen realization that danger exists wherever there is carelessness or recklessness. In this the stimulating influence is exerted not only with workers but with those who direct their efforts. When a foreman ceases to function to prevent

accidents in his department, his casualty list is apt to show it quickly.

In fact, the real secret of decreasing the number of accidents and the working days lost lies in keeping everyone interested in the subject, from the executive officers down to the rank and file.

Placing the Responsibility

THE men who personally conduct the safety work at Worcester give credit for a large part of the recent gains in efficiency to the live routine of the safety committees

and the safety meetings. Once a month every department of the plants closes down for a period ranging, as it may be, from 15 to 30 minutes, when all employees gather as a family party to discuss safety matters. It is all very informal and intimate. The foreman may give a little talk and the men are encouraged to ask questions and make suggestions. Many times an important idea has originated at one of these meetings in the suggestion of a workman. Some of these ideas are now in everyday use in every wire mill of the company.

There are two safety committees, the general committee and the workmen's committee. The general committee consists of the assistant superintendent, master mechanic, chief engineer or chief draftsman, and one or more foremen, these latter changing from time to time to bring into the committee a wider representation of departments. The workmen's committee consists of three men chosen from the ranks, who serve one or two months, rotation insuring in the course of a year a considerable personnel, and incidentally distributing a proportionate sense of responsibility through the plant.

One influence which is peculiar to Worcester and the towns round about the city is the lost time accident contest which has been maintained by the Worcester County Safety Council for a number of years. Close to 50 plants, including most of the large establishments of the city, are striving month after month and year after year to get on the honor roll, which means that there has been a clean record of no accident, or with the larger plants less than one accident per 500 employees, in the month preceding.

Publicity in the daily press carries to the workers of each mill or factory the measure of success of competitors. Moreover, at the end of each year the plants are ranked on a percentage basis of their success.

In the case of the American Steel & Wire Co. the three local plants are entered in the contest as separate units and therefore are competing with each other, the rivalry between north and south works being as keen in this as in baseball or other sports in which the works compete. In other words, the accident record has come to be looked upon as a sporting proposition.

WORCESTER WORKS, AMERICAN STEEL & WIRE CO.
Report of Number of Accidents and Days Lost

Year	Cases	Days Lost	No. of Accidents Per 100 Employees
1917	334	7,491	5.71
1918	149	7,499	2.77
1919	100	6,648	2.17
1920	115	5,511	2.23
1921	75	6,003	2.13
1922	97	6,857	2.32
1923	68	4,831	1.61
1924	57	4,007	1.47

Naturally this is a contributing cause in keeping up general interest in the safety work. Not infrequently north and south works as well as the much smaller central works get on the honor roll as having operated a month without any accident whatever, and more often still as having less than one accident per 500 employees.

Each plant has its "clock," set up near the main entrance, that of the north works being shown in the

accompanying illustration. It gets more than a casual glance as employees pass it entering or leaving the plant. It tells the story of the month to date, the hand of each dial remaining at zero, as shown, so long as there is no casualty, and going to 1, 2, 3 o'clock or later, as there are one, two, three or more accidents as the month progresses. The board also shows the record of earlier months and of previous years.

NOTABLE BLOOMING MILL*

44-In. Unit at Homestead Weighs 3,929,000 Lb., with Mill Proper, 1,510,000 Lb.

Fig. 1 shows, in plan, a modern 44-in. two-high reversing bloomer. This particular mill is now under construction at the Homestead works of the Carnegie Steel Co. It has no outstanding features of construction that vary from modern practice with the exception, possibly, of the roll-changing apparatus. Here, instead of removing the rolls individually, and such of the roll bearings individually as may be necessary to allow for the removal of the rolls, it is contemplated to remove both of the rolls and their bearings with one operation.

*Taken from paper, "Bloomer Mills and Bloomer Mill Practice," read May 22 by W. H. Bailey, chief engineer Illinois Steel Co., Chicago, before American Iron and Steel Institute.

The principal parts of the mill proper are of cast steel throughout. The rolls are 44 in. diameter maximum over the collars and 96 in. long over the bodies. The lift of the top roll is 46½ in. The roll neck journals are 24 in. diameter by 24 in. in length. The mill screws are 14 in. in diameter with 2 in. pitch. The top roll is balanced by means of a single 17-in. diameter hydraulic cylinder carrying 600 lb. pressure per sq. in. The pinion housing and pinion housing cap are of cast steel, the housing is of the totally inclosed type, made in two pieces, and is bolted direct on the foundation. The pinions are 44 in. diameter each, with 17 cut teeth of helical stub type. The pinion neck journals are 26 in. diameter and 3 ft. 3 in. long. The mill spindles are of the now generally adopted universal joint type, approximately 22 ft. long.

(Concluded on page 320)

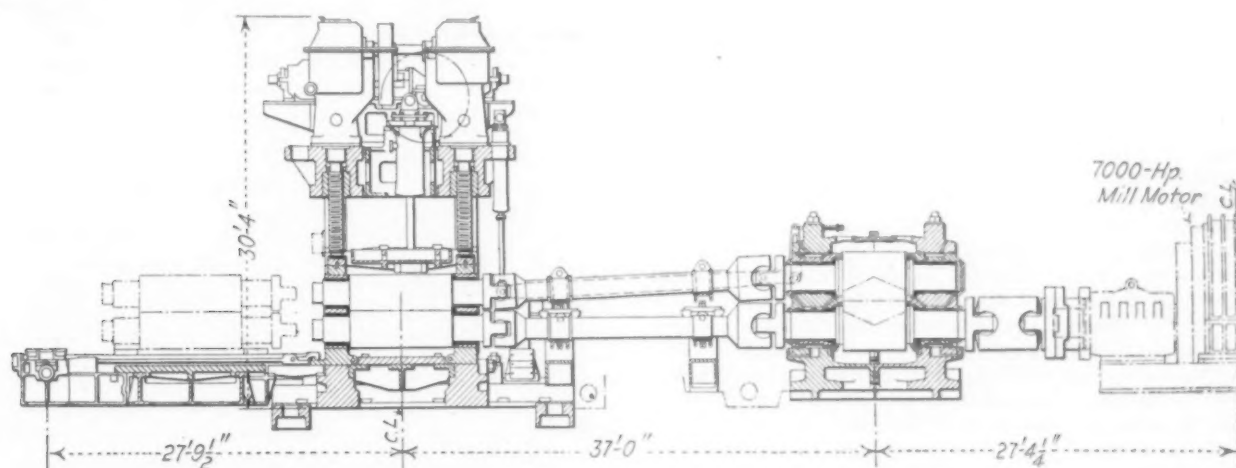
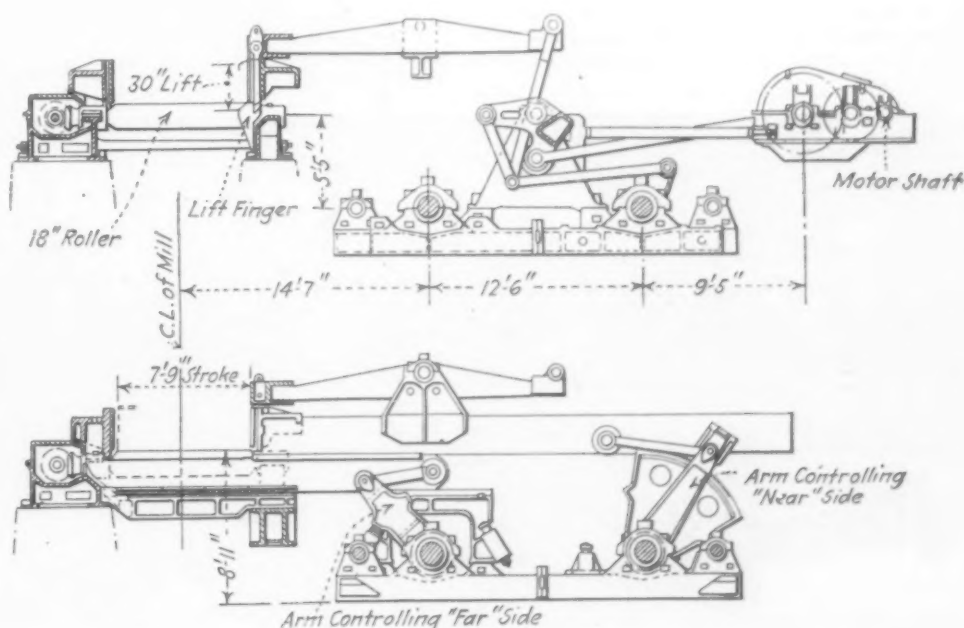


Fig. 1—Sectional Elevation Through Mill and Pinion Housing of 44-In. Two-High Reversing Blooming Mill, Showing Device for Removing Both the Rolls and Their Bearings at One Operation. Something of the massiveness of the mill is indicated by the dimensions given

Fig. 2—Two Sections Through the Manipulator (Electrically Driven) of the 44-In. Reversing Blooming Mill.—At top is shown the finger control mechanism. The fingers have a total lift of 30 in., at the rate of 26.3 ft. per min. Below is the control mechanism for the shoes, both being handled from the same side of approach table. The velocity of the side guards is 111 ft. per min. and the maximum stroke 7 ft. 9 in.





Traversing the Table to Locate It for Pouring—The traversing device makes it possible to line up the molds for pouring direct from the ladles filled from the melting furnace, and also to line up the poured lines with the shake out

STUDYING the subject of handling molds in a brass foundry with the least amount of manual labor, the H. M. Lane Co., Detroit, has been working for some years with the Speakman Co., Wilmington, Del. The first suggestion made by the Lane company to change the old practice was a series of circular turntables; these were built and tried out. Mr. Fraser of the Speakman Co. next improved on this by placing a group of four turntables on a revolving sub-base.

As both these devices took up too much floor space, it was next suggested by the engineers that roller carriers be arranged in a straight line and tilted to take care of pouring requirements. These stationary carriers, however, presented a number of difficulties, because it was difficult to line the work up at the pouring monorail and at the same time make it convenient to the molder. So Mr. Fraser made a number of suggestions which finally resulted in working out the device shown in the several illustrations herewith.

In the diagram are given the plan of one working floor and the arrangement of the pouring table. While in this particular drawing the molding machine stands with a certain relationship to the building columns, it may be said that this point is not fixed; the unit is free to be shifted up and down the shop as requirements may dictate. The only thing that is fixed to any extent is the position of the pouring rail, which connects with the monorail overhead.

From the diagram and the photographic view of the same unit it is clear that the mold table itself is free to move up and down the floor, being supported on four wheels running on tracks set flush with the top of the floor. One view shows the position of the mold-

Some Studies in Mold Handling

Placed on Cars Fitted with Rollers
—Cars Shifted to Pouring and Shake-Out Positions

ing machine, at the left of which can be seen a bench, used as a set-off bench while coring the mold and also to receive a stock of cores for the molder. The molding boards and flasks are piled as indicated.

How the Molding Table Operates

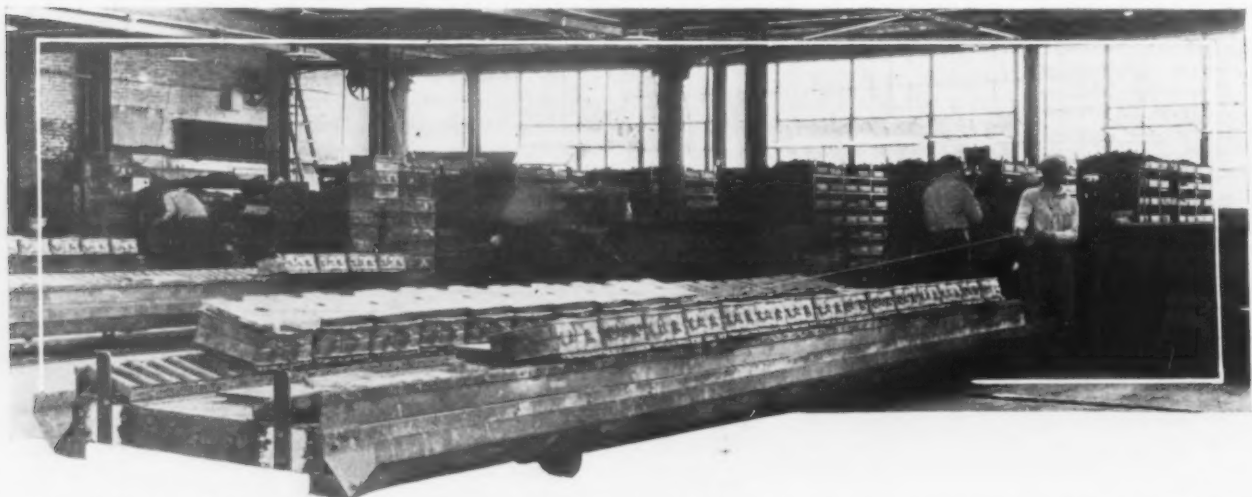
In the diagram the table is shown in the first position it occupies during molding. The molder first fills the right-hand conveyor, which gives him a minimum amount of walking. He then shifts the entire carriage to the right by means of the hand-wheel operating it, as shown in one half-tone. This brings the left-hand conveyor into the position occupied by the right-hand unit in the diagram, and the molder proceeds with his work.

Moving the table to bring the second line of carriers behind the molder also brings the first line of carriers under the overhead track or pouring monorail. While the molder is filling the second carrier, the molds on the first carrier are poured. The carrier or table is then moved still farther to the right, bringing the second conveyor under the pouring monorail and the molds on it are poured. This operation automatically brings the first carrier to the shake-out position.

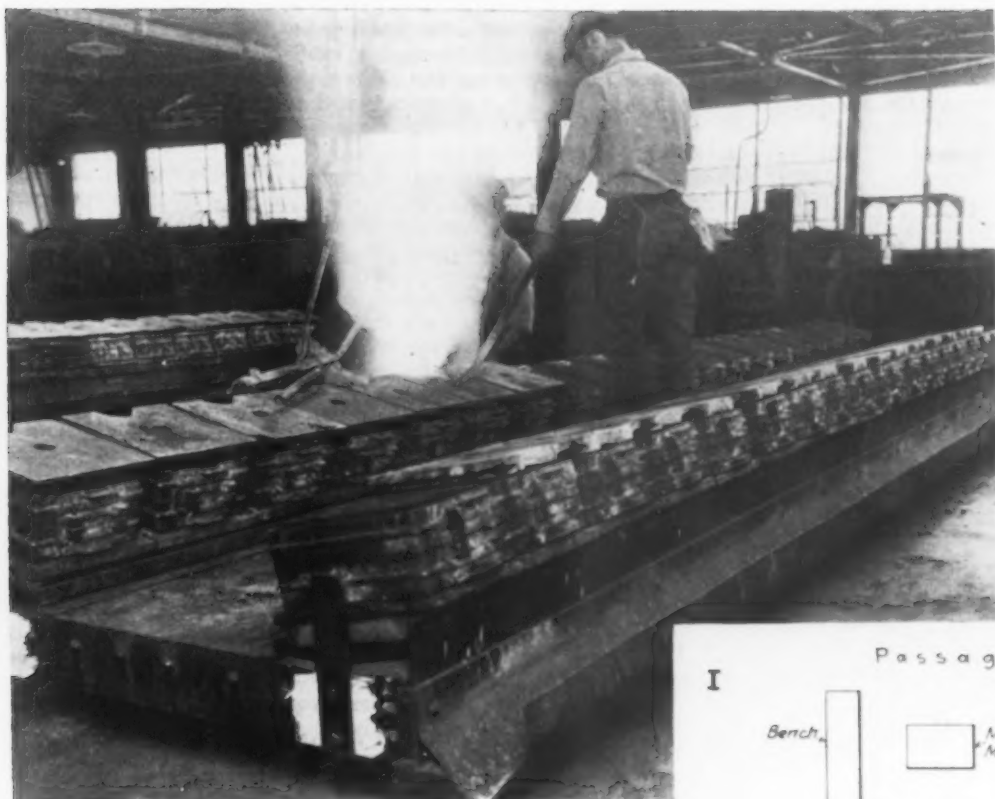
There is an adjustable shake-out horse which can be set at the edge of the sand pile and over which the laborer shakes out the molds. The castings as taken from the molds are piled into boxes or barrels, to be removed to the cleaning room. The flasks and boards are stacked by the molder's bench and the sand left in a position to be cut over.

One view illustrates the manner in which the laborer pulls molds to the shake-out end by means of a rope hooked onto the flask farthest from him. The same rope is shown in the spill trough in another picture. With this device the molder never has to carry a mold farther than to the end of the carrier immediately behind him, except when the table is in an extreme position to the right. This adds only a few steps to his work and occurs so rarely that few molds have to be carried this additional distance.

Some of the features of the outfit are clearly illus-

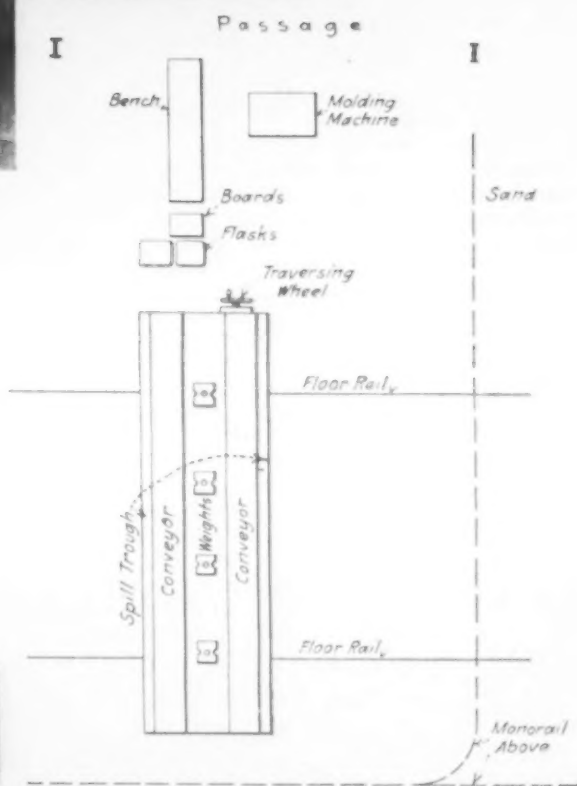


General View of Mold Table—The manner of supporting the table on four wheels is clearly shown. The man at the rear with the rope is pulling a row of molds back so that he can shake them out



Pouring Molds — The central portion of the mold table serves as a walkway and as a storage space for weights when not in use. Each side of the pouring table is provided with spill trough, and the whole construction is such that it tends to keep the foundry clean

Plan of Molding Space and Handling Devices—The molder first fills the conveyor immediately behind him, as shown in the illustration. When this is full, he moves the other carriage to the right by means of a hand-wheel and gears, bringing the second conveyor immediately behind him, and fills this. This first operation of moving also brings the first carrier into the pouring position under the overhead monorail. When it is necessary to pour the second carrier, the other carriage is moved still farther to the right. The laborer shakes out the molds when the carriage is in its position to the right and then returns the carriage to the most advantageous position for the molder



Molding Machine End of Molding Table—The short carry for placing molds on the table is shown, as also the short carry required for shaking out the molds. This device has greatly reduced the labor of handling sand

trated in the various views. It will be noted that the center of the table is used for piling weights when they are not in use. Weights are stripped from the molds and piled in the center of the table before shake-out begins. In one illustration the molds at the left are partially weighted, the weights for the remainder being piled in the center of the table.

Attention is called also to the fact that the carriers are set on such an angle as to provide the proper head when pouring the molds. The spill trough on each side of the table takes care of any shot metal.

In the pouring operation it will be noted that the laborer is pressing down on the weight with his skimmer, so as to increase the effect of the weight. This is necessary only on certain grades of castings.

This device has proved very flexible and has given a marked increase in the output of both molder and laborer.

Provisions have been made in the design of the plant for the installation of a sand-handling system. At present, after shaking out the sand the laborer has to shovel it through a riddle, cut it over and prepare it for the molder. When the stand-handling system is installed a shake-out will take place at the gangway end of the table and the sand will be returned to overhead bin by the molder.

With this arrangement, however, the laborer will have to stack the flasks temporarily at the gangway end and then run the empty flasks and boards back along the carrier for stacking by the molder. It is believed, however, that this will be more than compensated for by the fact that the hot castings will land in the gangway away from the molder and that the shake-out and all of the operations of the laborer, except returning the flasks, will take place at the gangway end, where they will be of no hindrance to the molder.

CAUSE OF BLISTERS

Study of Cast Iron for Enameling Purposes Shows Three Possibilities

Sample iron plates cast from northern pig irons were distributed to cooperating enamellers and also enameled in the Bureau of Standards laboratory. Both lots of sample plates were found to blister if enameled above a fairly definite temperature; that is, about 1290 deg. Fahr., according to Technical News Bulletin No. 99, issued by the bureau.

The three most probable causes of the blisters are as follows: A certain amount of gas is taken up in the blast furnace, due to some difference in operating conditions in northern furnaces. It has been assumed that, on remelting once in the cupola, the gas is not removed, but it is on repeated meltings. Just why this should happen is not clear, because analyses of cast irons for oxygen, hydrogen, and nitrogen show no difference between ordinary and remelted irons.

The second possibility is that some element not shown by ordinary analysis is present in the pig and is responsible for the trouble. Spectroscopic analyses fail to show any difference that can be considered significant.

The third possibility is that graphite may be present on the surface, and is not wholly removed by sand-

blasting. At a sufficiently high enameling temperature this graphite would react with the oxides of the enamel to form carbon monoxide, which causes blisters. By remelting, something might happen to change the distribution of graphite, so that finally the surface after sandblasting would be free from graphite.

Further Tests

In view of the possibilities sample plates were prepared from two northern irons melted once in the electric furnace. The scrap produced was also remelted and cast into sample plates. One Northern iron has been remelted in the cupola two times and sample plates cast. The test pieces made by the above methods have been enameled at the bureau, with promising results. It was found that all plates cast from the first melting in the electric furnace blistered, but not so badly when enameled by the dry process as when enameled by the wet process.

Sample plates obtained by remelting the scrap, both in the electric furnace and in the cupola, show no blisters when enameled by the dry process and a decided reduction in blistering in the wet process. It appears that remelting the iron several times is beneficial in reducing the blistering of the enamel. Chemical analyses of the cupola and electric furnace melts have been made and microscopic examination now is in progress.

RE-ROLLED CONCRETE BARS

Extra Ductility Claimed Over Original Rolling—Their Useful Field

BY C. L. VOLKMAN

IT has become a common measure of a structural material to state the product of the strength by the elongation. The specifications of the American Society for Testing Materials for boiler riveted steel state that the percentage elongation in 8 in. shall be 1,500,000 divided by the tensile strength; for hard-grade billet steel concrete reinforcement bars, 1,200,000 divided by the tensile strength; for rail steel concrete reinforcement bars, 1,200,000 divided by the tensile strength.

In 1913, Committee A-1 of the A. S. T. M. investigated the rail steel product from five mills, collecting over 2000 samples of reinforcing bars rolled from steel rails. These bars were of various sizes and shapes, originating from the head, the web and the base of the rails. The elongation of the plain and deformed bars ranged from 1,600,000 to 2,000,000 divided by the tensile strength. In other words, this rail steel had excess ductility over that to be expected of high-strength steel.

The strength of these plain and deformed samples ranged from 98,600 to 108,500 lb. per sq. in., the yield point from 50,000 to 75,000 lb. per sq. in. and the elongation from 15 to 20 per cent, stated as averages. The conclusion of the committee was that this material

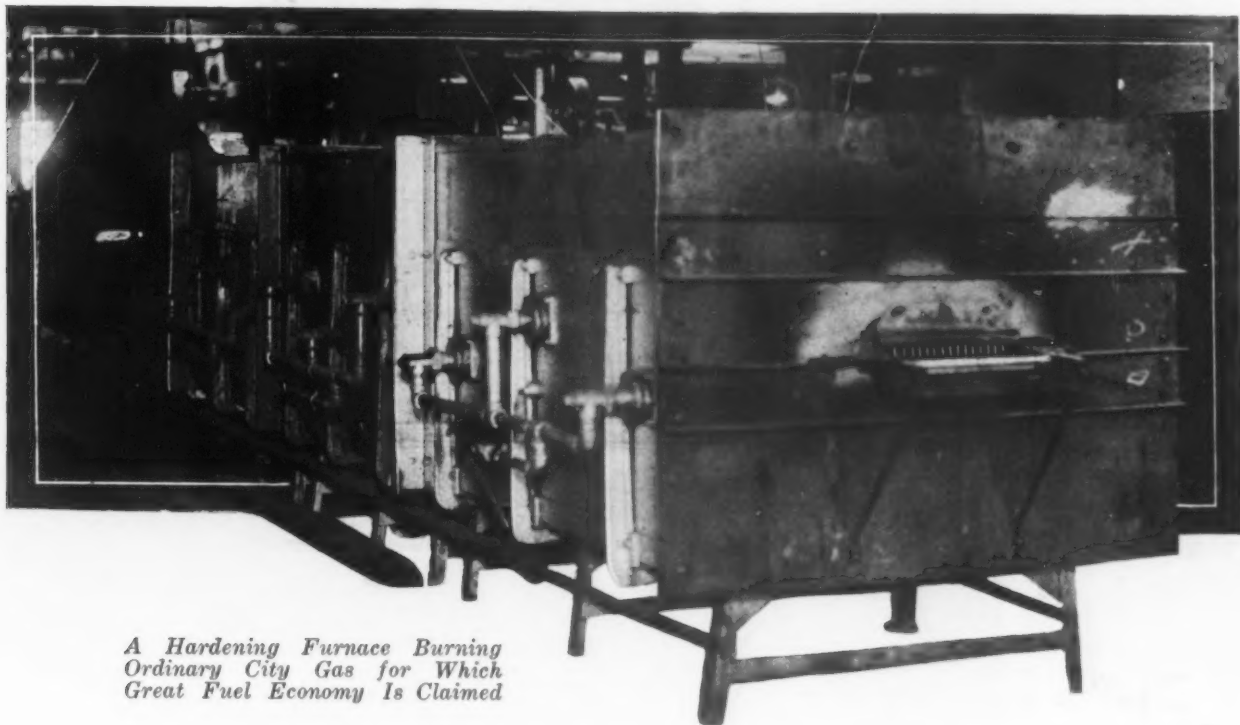
was of sufficient quality and uniformity to justify a specification, which was adopted by the A. S. T. M. in 1914 as serial A-16-14.

It has been found that re-heating and rolling these rails into smaller sizes increases the ductility. For instance, in the case of a 75-lb. rail of 0.24 per cent carbon, the product of the tensile strength and elongation was 1,370,000 in the original rail and of the re-rolled material, 1,890,000. Elongation had increased from 14.8 per cent to 20.1 per cent. Ductility is the result not only of chemical composition but also of rolling conditions. By improved rolling mill practices, strength due to high carbon can be obtained without loss of necessary ductility.

Reinforcing bars in general should be judged on the basis of their use. Concrete is essentially a monolithic construction and one unit in the construction is held together by a plurality of bars which are protected from direct shocks. The engineer, therefore, does not need that each individual bar should be identical with every other. He does not expect that this will be so in an all-steel structure. Reinforcing bars as a class may be as uniform as the component parts that go to make up a riveted steel column, and much more uniform than the concrete that they reinforce.

Domestic sales of oak leather belting reported by the Leather Belting Exchange as a business indicator, and representing about 60 per cent of the total product, amounted to 367,583 lb. in June, against 345,926 lb. in May and 288,817 lb. in June, 1924.

Wire Mill Uses City Gas for Fuel



A Hardening Furnace Burning Ordinary City Gas for Which Great Fuel Economy Is Claimed

Furnaces at Newark Plant of Stewart Hartshorn Co. Use Surface Combustion Method—Higher Output and Uniform Quality at Lesser Cost

BY J. M. LAYNG*

THAT the quality of steel is only as good as its heat treatment has been realized for many years by the Stewart Hartshorn Co., Newark, N. J. This company manufactures high-grade tempered window shade wire, as well as other grades of wire, to exacting requirements. When the plant was designed, coke was employed as a fuel in the operation of annealing, baking, patenting and tempering units. Producer gas, believed superior to coke, was employed next and, after many years of operation, was replaced by electrically operated furnaces. The latter method unquestionably produced a product of excellent quality but, due to the prohibitive fuel cost, this method was necessarily abandoned.

Present methods of firing have proved more satisfactory than all methods employed heretofore. All furnaces, such as open annealing, pot annealing, baking, patenting and tempering, have been redesigned and converted by the Surface Combustion Co., 366 Gerard Avenue, New York, for the use of city gas. All furnace temperatures are recorded by means of remote and central recording and indicating systems of temperature regulation, with the equipment housed in a separate pyrometer room away from the fumes and dust of the mill. The furnaces now operated by city gas have been installed for four to six months and have demonstrated that the savings estimated are being achieved.

Open Annealing of Wire Coils in Solid Hearth Furnace

Open-hearth annealing is used for incoming wire rod and subsequent annealing of the drawn wire. Each charge yields approximately 2500 to 3000 lb. of material and is permitted to remain in the furnace 2 to 4 hr. This furnace has a hearth measuring approximately

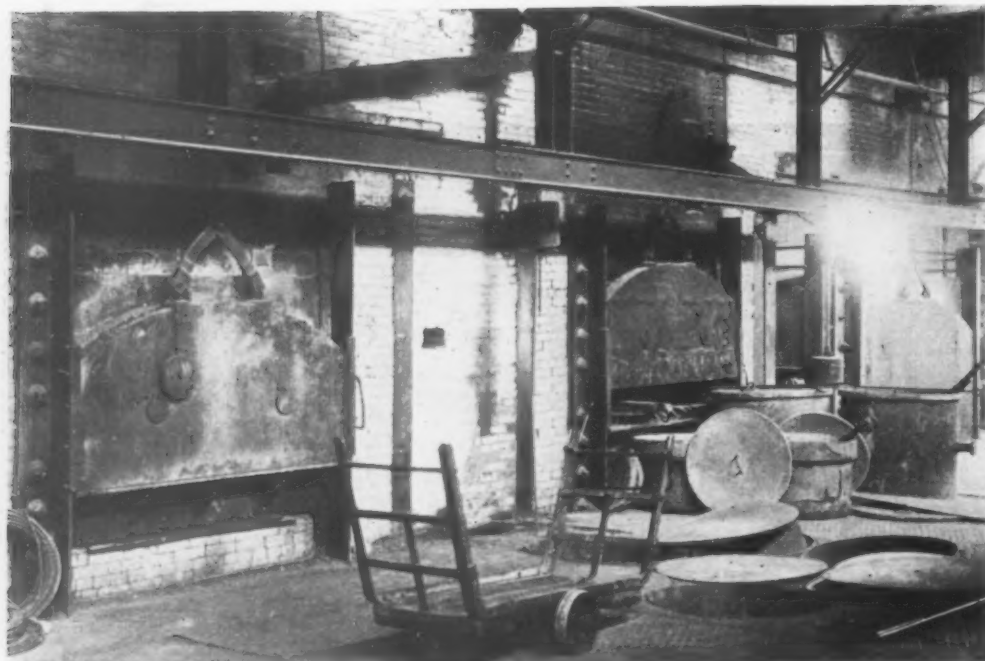
10 x 12 ft. and is fitted with 12 burners, all near the spring of the arch, six on a side. The average gas consumed per hour is estimated at 800 cu. ft. The charge of wire coils is heated to 1200 or 1400 deg. Fahr., depending upon the nature of the material treated. After withdrawing the charge from the furnace, it is dropped into cooling pits set in the mill floor and then covered, thus permitting slow cooling before removing to the pickling operation. After the wire is properly pickled to remove any scale that has formed on its surface, it is washed and lime coated by being dipped into vats containing a solution of lime.

Wire Baking Oven

The lime-coated wire coils are suspended on yokes hanging on the baking trucks and, after a partial air drying, each truck is run into the bake oven. This oven is approximately 15 ft. wide by 42 ft. long and has three tracks for the rack trucks to carry the wire coils. Each track will accommodate six trucks, each truck measuring approximately 6 ft. long. From 1000 to 2000 lb. of wire comprise one truck load. Two heating ducts under the oven floor, between the tracks, run the entire length of the furnace, tapering from 30 x 18 in. at the inlet end to 12 x 18 in. at the outlet end, with one large velocity gas burner firing in each duct.

Indirect heating is used, to avoid the rusting of wire which would accompany the deposit of moisture from the products of combustion upon it. The oven is thoroughly insulated, a special brick being employed for side walls and all doors packed with a pulverized insulating material. The furnace is kept at a fairly uniform temperature of about 300 to 400 deg. Fahr. About 48,000 lb. of wire per day of 24 hr. passes through this oven. The trucks remain in the oven sufficiently long to permit the desired result, the time depending upon the gage of wire treated. The oven

*Superintendent, Stewart Hartshorn Co., Newark, N. J.



*A Bake Oven Unit
Like This Can
Handle 48,000 lb.
of Wire per Day
if Efficient Firing
Conditions are
Provided*

consumes about 1600 cu. ft. of gas per hr., or slightly less than 1 cu. ft. of gas per pound of wire handled. The one bake oven used will yield practically twice the output obtained previously, which fact can be attributed to the efficient firing conditions offered by the new method. The second oven is idle.

Patenting Wire by Gas Heating

The output yielded by the old type of producer gas patenting furnace was doubled upon completion of the new furnace fired with city gas. Each patenting furnace now in use is 50 ft. long, with a solid hearth inside, 48 in. in width with a height from hearth to spring line measuring 8 in. There are 38 burners, well distributed, 19 on each side. It is not necessary, however, to operate all burners after the furnace has been brought to heat, as, in practice, only one-half of the burner equipment is required during operation. The

furnace is insulated with $4\frac{1}{2}$ in. of special brick in back of 9 in. of fire-brick wall. The total gas consumed per hour approximates 1800 cu. ft.

When handling sizes ranging from No. 9 to No. 15 gage, about 1200 lb. per hr. may be passed through, in 30 strands. When patenting rods, however, the number of strands is necessarily reduced, but the same hourly output retained. The use of city gas, with its reducing atmosphere, resulted in a reduction in the amount of scale formed on the wire. Formerly this loss approximated 9 per cent, including all patentings, but this has been reduced to 2 per cent. This condition naturally resulted in heavy savings.

Shade wire, after having been drawn to its finished size, as described in the foregoing steps, is now ready for the final heat treatment. The operation of tempering is perhaps the most important in the manufacture of wire for spring purposes. Each spring is made from a fairly



*25,000 lb. of Wire
is Handled at One
Charge in this
Gas-fired Open
Hearth Annealing
Furnace*

long continuous length of wire and, should the temper not be uniform, the product would have to be rejected. Both hardening and tempering heats are controlled automatically and city gas, in conjunction with the Surface Combustion burner equipment, has yielded most gratifying results.

Hardening and Tempering by Electricity

An electrically heated tempering unit had been in use for possibly 18 months and, while the quality of the wire produced by such method was absolutely satisfactory, the fuel cost, as mentioned above, was found high. This unit, now fired by gas, yields the same output at practically one-half the fuel cost.

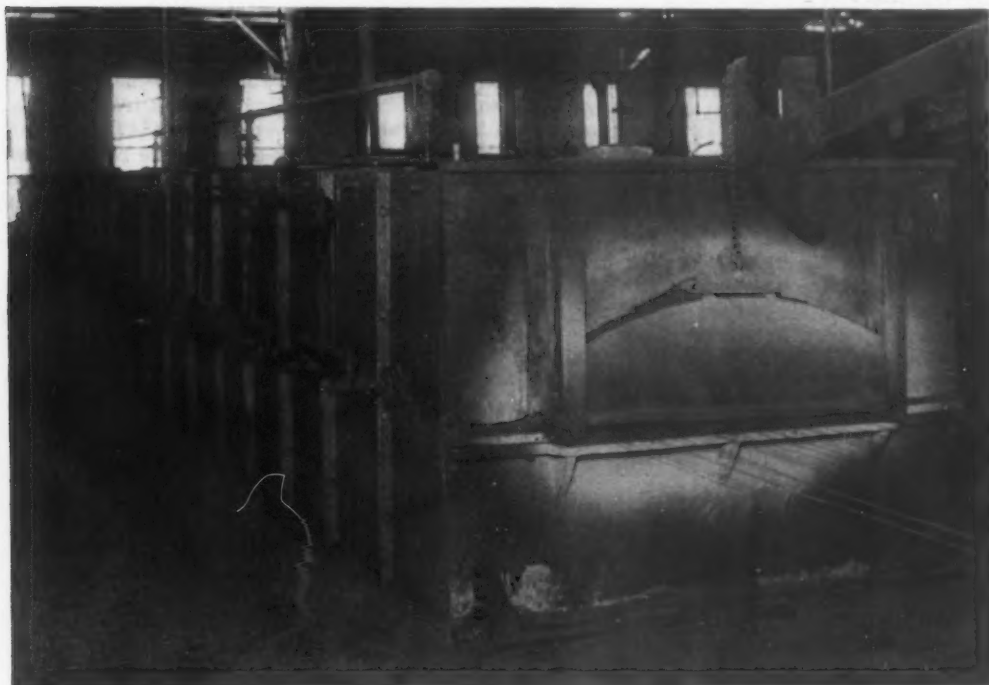
A total of 32 strands per unit is passed through one heating chamber, at the rate of 48 to 54 ft. per min., this speed varying, of course, with the gage of wire treated. It is estimated roughly that the gas consumption is 2 cu. ft. per lb. of wire tempered. The hardening furnace is 18 ft. long with a solid hearth 15 in. wide. The 32 strands are drawn through, resting

pering furnace and mechanism, are identical with the unit described.

Pot Annealing in Coils

A rather large percentage of the wire manufactured by this concern is shipped to the trade in either the annealed or the hard-drawn state. Where annealing is specified, the pot annealing method is employed. This affords a product free from scale and to the desired quality. The pots used in these annealing furnaces are of cast iron and the coils, when placed in the pot, surround a walled cylindrical opening or "stem" up through the pot, which is so adjusted that the products of combustion pass not only around the outside of the pot but also up through the "stem."

Each pot is charged with 800 lb. of wire and the furnace has a capacity for ten such pots. The net area of the hearth measures 10 x 13 ft. A total of approximately 8000 lb. of wire constitutes the full charge and, as a rule, is subjected to 24 hr. of continuous heating, at a temperature depending upon the nature of the



This Gas-Burning Patenting Furnace Doubled the Output of the Old Type of Producer Gas Furnace

upon this hearth. The lead tempering or drawing bath is 5 ft. long and 22 in. wide and contains about 5 in. of lead in depth. There are 18 burners in the hardening furnace, nine on each side, staggered. Three burners are under control of one inspirator and operating at a pressure of 5 lb., comprising a unit of which there are three on each side of the furnace. The lead tempering pot has two burners, one situated on each end of the retort. It is not necessary to employ the use of both burners at all times.

The wire passes from coils on reels at the entering end of the hardening furnace, through guides, into the hardening unit and down into the quenching oil bath, and from then on to the tempering lead kettle, where it is passed through a molten lead bath and then onto reels, where it is again coiled. By this method a thoroughly clean wire is produced, almost entirely free from scale, which condition is brought about by the reducing atmosphere through which the wires are passed.

The company employs, in addition to this furnace, another type of tempering furnaces which consists of a hardening lead retort fired by the Surface Combustion method. These furnaces are naturally shorter and the pot, or retort, through which the wires are passed measures 6 ft. long and 12 in. wide and is fired by one burner only. The other unit, such as the oil bath, tem-

material undergoing annealing. This type of furnace has 20 burners, ten of which are near the spring in the arch along one side, while the other ten open into a trench below the level of the hearth on the opposite side. After the pots are brought to the desired temperature and soaked for a given period, they are hauled out in front of the furnace and allowed to cool, when the covers are removed and a new charge put in.

Method of Combustion Used

It has been found by experience and experiment that a high combustion efficiency is obtained by making, as nearly as possible, a theoretically perfect mixture of air and gas in the nozzle before combustion begins. This mixture, ejected from the nozzle at a speed higher than that of the propagation of flame backward through it, is ignited at a point some distance in advance of the nozzle. Here combustion may be supported by reason of the fact that the velocity has been lowered by the spreading out of the gaseous mixture in cone-shaped form.

Two methods are in vogue in this system of combustion for obtaining the full effects of the liberation of heat from the burning of gas. In one method a highly refractory bed of granular material is located in the path of the incoming gas at a point such that

combustion will take place upon the surface and in the interstices of the particles in this mass. The other method is to locate the burner nozzle in the axis of a cylindrical tunnel, the walls of which are formed by a highly refractory clay, and to permit the combustion to take place on the surface, or in the immediate neighborhood of the surface, of this refractory tunnel.

In the Stewart Hartshorn plant the latter method is the one in use, all of the nozzles discharging the air and gas mixture into a cylindrical prolongation of the nozzle axis. This method of combustion does not depend upon the outside air for oxidation of the combustible elements in the gas. Air is already furnished in the mixture in sufficient quantity to perform this chemical function and consequently there is not the long flame with which combustion usually is associated. The zone of combustion, so to speak, is short and, as the surfaces against which it takes place are especially designed to receive it, the other surfaces in the fur-

nace are thereby protected from the scoring effect sometimes experienced.

Heat is imparted to the objects to be heated mainly by radiation from the incandescent surfaces thus produced, somewhat after the manner of the radiation of light from a Welshbach gas mantle. The outgoing products of combustion, of course, add to the heat-giving elements except in cases where indirect heating is used, as in the baking unit in the plant. In this case the products of combustion are led away separately and reliance is placed wholly on the radiation effect.

The gas mixers are of the Surface Combustion high-pressure type, utilizing gas at a maximum of 10 lb. pressure and inducing its own air sufficient for complete combustion at the furnace. The gas at 10 lb. is supplied by two reciprocating gas compressors, motor driven and equipped with unloaders to hold a constant pressure of 10 lb. Only one compressor unit is operated at a time, the other being held as a reserve unit.

Weirton Steel Co. Moves Toward River Steel Shipments

The Weirton Steel Co., Weirton, W. Va., has made application with the United States Engineers office, Pittsburgh, for permission to construct a harbor and dock facilities on the left bank of the main channel of the Ohio River at Brown's Island, W. Va., 62 miles below the head of the Ohio River. The proposed harbor and dock facilities are to consist of a stationary unloading tower; a wooden fender attached to concrete piers, extending 200 ft. above and 200 ft. below the unloading tower. Upstream from the unloading dock 400 feet, it is proposed to install a loading dock for the shipment of steel products. This dock is to consist of a concrete foundation with fender of similar construction extending upstream 100 ft. and down stream 100 ft. from the center of the foundation of the loading dock. It is proposed to fill in the rear of the loading dock to permit the installation of railroad tracks and to dredge and dump approximately 26,500 cu. yd. of material.

Pittsburgh District Steel Companies Seeking Lower Scrap Freight Rates

A renewal of the effort, started 16 years ago, to secure a reduction in scrap freight rates to at least the pig iron tariffs was made at a hearing held at the Chamber of Commerce of Pittsburgh, Friday afternoon, July 24. W. R. Askew, of the auxiliary committee of the Trunk Line Association, and A. W. Kelly and E. A. Austin, of the auxiliary committee of the Central Freight Association, heard the case on behalf of the railroads of the territories embraced by these associations.

Proponents of the movement for lower rates were chiefly the steel companies in the Pittsburgh, Youngstown, Buffalo, Cleveland, Wheeling and Central Ohio districts. Their representatives pointed out that a reduction in freight charges on scrap to the basis now in force on pig iron would go far toward correcting the shortage of scrap in those districts created by the constantly growing steel production of those districts. It would enable them to draw from more distant sources of supply than now is possible.

Much testimony was presented to show the wide difference between pig iron and scrap freight rates between a number of typical points. There was a plea that the consuming points represented at the hearing be given the same treatment as to scrap freight rates as is accorded the Chicago district and Eastern producing centers. They are credited with enjoying rates more in keeping with the character of the material, which, it was argued, is to be regarded as a raw material and consequently entitled to carrying charges as low as pig iron and semi-finished steel.

Railroad spokesmen opposed the reduction pointing out the difficulties in handling scrap. T. W. Friend, general manager of sales, Clinton Iron & Steel Co.,

Pittsburgh, speaking for his own and other merchant pig iron producers, opposed a cut in scrap freight rates. He claimed that the steel companies used scrap in making pig iron and would thus be helped in bringing about even lower average costs than they now enjoy and this would make it very difficult for merchant producers, especially those making foundry iron in which no scrap can be used, to compete with the steel companies. He declared his opposition to the rate cut was purely one of self-preservation and reviewed the unprofitable pig iron situation of the past few years which had resulted from steel company sales of surplus production.

Carnegie Steel Co. Buys Site for River Shipment Terminal

The Carnegie Steel Co. has exercised an option it secured several months ago on an 80-acre plot at Baton Rouge, La. Formal closing of the deal has been delayed pending a decision on the construction of a bridge near New Orleans, which might have impaired the utility of the site as the location of a river terminal for the transshipment of steel products by rail and steamships brought down by barge from Pittsburgh and other Northern plants. Actual construction of the terminal, it is officially stated, will not begin immediately, as river shipments of steel from Pittsburgh are possible only for about six months of each year, when there is a sufficient stage of water in the rivers. The Government is building locks and dams in the lower Ohio River, but completion of them is some time off and building of the Baton Rouge station by the Carnegie Steel Co. will be started when there is assurance that regular shipments can be maintained throughout the year. That will be possible with the completion of projected Ohio River locks and dams.

To Scrap Saxton Furnace

W. S. Pilling, Philadelphia pig iron merchant, who recently purchased the Saxton and Everett blast furnaces and allied properties in central Pennsylvania, including coke ovens, coal lands, etc., from the Joseph Thropp Co., which was in bankruptcy, has sold the Saxton furnace stack and machinery as scrap to a combination of Pittsburgh scrap dealers. Some of the equipment has been moved to the Everett furnace to be used as spare parts or replacements. Portions of the Saxton real estate, especially dwellings, have been sold to various purchasers. Mr. Pilling and his associates are retaining the coke ovens and the land for possible future use.

A directors' meeting of the American Association of Oil Burner Manufacturers was held at the Hotel Book-Cadillac, Detroit, on July 14. A change of name was approved, whereby the organization becomes the American Oil Burner Association. A campaign for new members is under way.

Builds Large Roll Grinder

Machine with 50-In. Swing, 24 Ft. Between Centers and Incorporating New Features Takes Rolls Weighing Up to 28 Tons

THE mammoth grinding machine here illustrated, built recently for the Mesta Machine Co., West Homestead, Pa., by the Landis Tool Co., Waynesboro, Pa., is thought to be one of the largest grinders ever built for commercial use. It will be employed for grinding chilled iron and steel rolls weighing up to 56,000 lb. and also for grinding steam engine piston rods up to 16 in. in diameter and 22 ft. long. Although in general design similar to the machines of this class built by the Landis company for five years, the weight is considerably more, the various units making up the machine are much larger and new features have been incorporated.

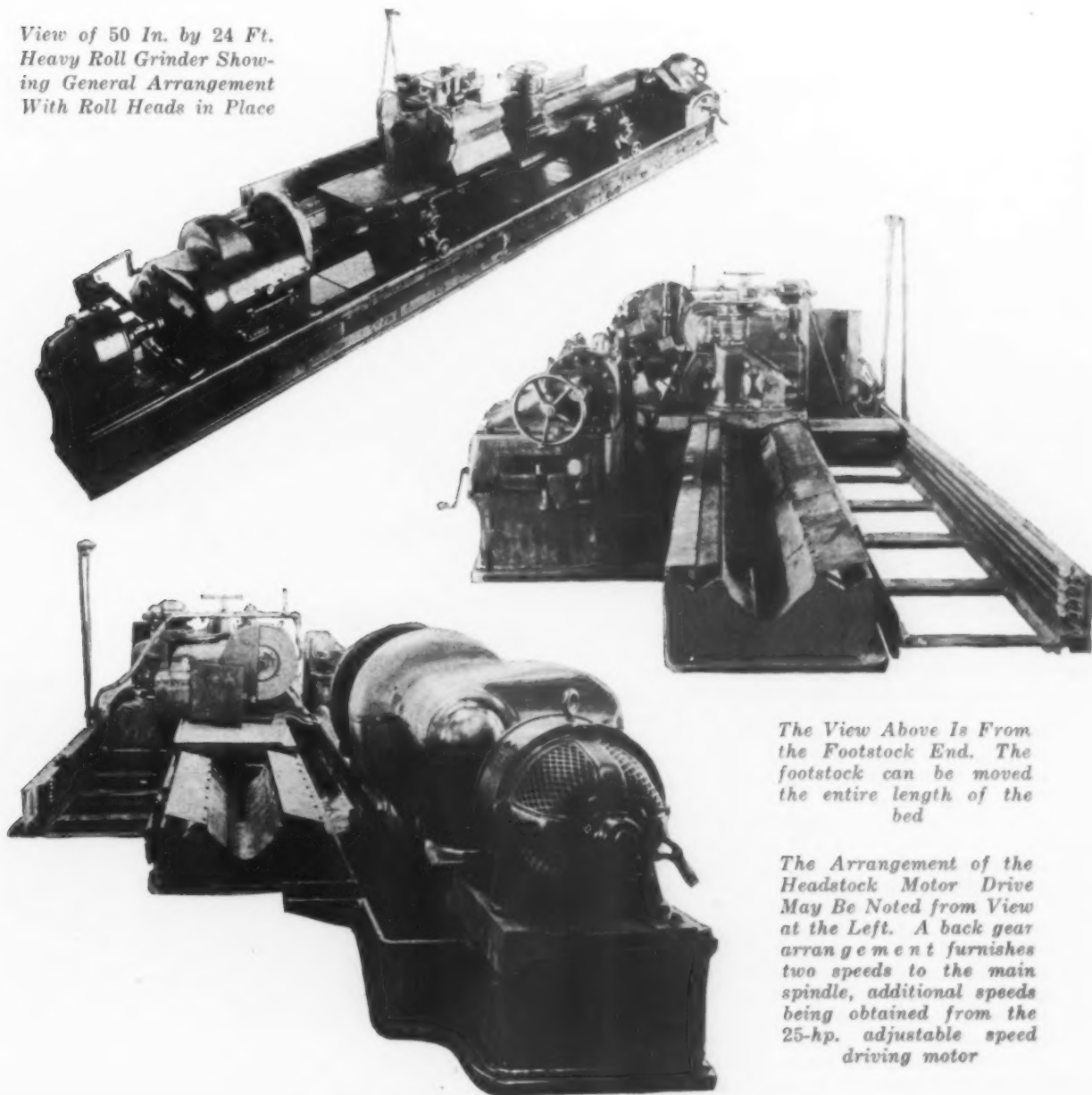
The swing over the bed is 52 in. and the distance between centers, 24 ft. The net weight of the machine, exclusive of the electrical equipment, is 110,000 lb. The weight of the main bed section is approximately 60,000 lb., that of the headstock 12,000 lb., and the weight of the grinding wheel head 9000 lb.

The main bed section is made in four sections, being divided lengthwise at the water channel and crosswise at about the center. No swivel table is used, the head-

stock and footstock being carried on flat and inverted Vee guides directly on the top of the front bed section. The position of the headstock is fixed, but the footstock is arranged for movement along the bed, by means of a mechanism consisting of a rack set in the center of the Vee guide, a rack pinion and a worm and wheel. The power is applied to the worm shaft by means of a large crank handle, and although weighing 6000 lb., the footstock is said to be moved with little effort. Flat guide covers of sheet steel protect the bearing surfaces after the footstock has been positioned.

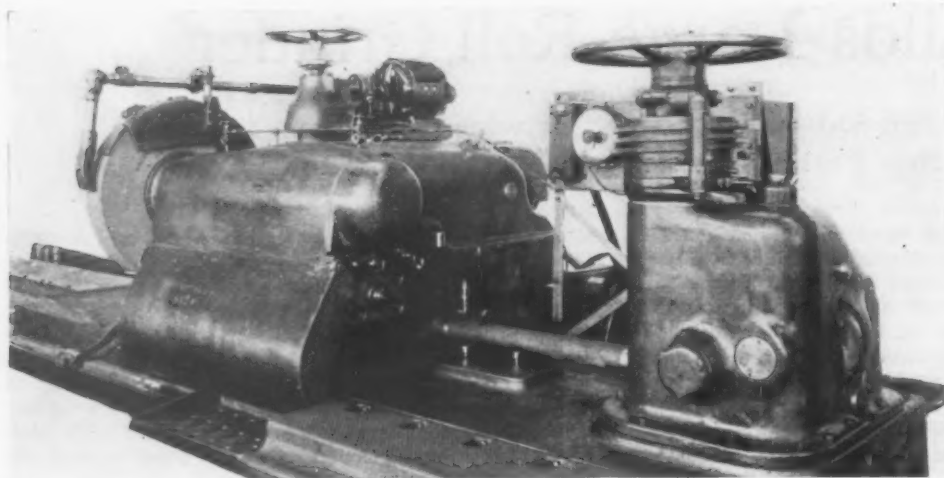
Power for driving the work is supplied by a 25 hp. adjustable speed motor which is direct connected to the headstock drive shaft by a flexible coupling. The headstock is equipped with cast steel herringbone gears of the Sykes type, which run in oil. Spindle speeds range from $4\frac{1}{2}$ to 72 r.p.m., two speeds being obtained by a back gear arrangement controlled by the lever on the front of the headstock, and additional speed changes from the adjustable speed driving motor. The headstock spindle is 8 in. in diameter and

*View of 50 In. by 24 Ft.
Heavy Roll Grinder Showing
General Arrangement
With Roll Heads in Place*



*The View Above Is From
the Footstock End. The
footstock can be moved
the entire length of the
bed*

*The Arrangement of the
Headstock Motor Drive
May Be Noted from View
at the Left. A back gear
arrangement furnishes
two speeds to the main
spindle, additional speeds
being obtained from the
25-hp. adjustable speed
driving motor*



Close-Up View of Wheel Head and Reversing Mechanism of Landis Heavy Roll Grinder. The carriage which carries the grinding wheel head and reversing mechanism operates on two V-guides spaced 30 in. apart. A feature is the built-in mechanism which permits of grinding rolls with either concave or convex surfaces

is of chrome-nickel steel. The spindle bearings are 23 in. and 16 in. long, respectively, and are lubricated by forced feed.

Alinement, ease of movement and rigid support are features of the grinding wheel head, which is carried on two Vee guides set 30 in. apart. The bearing surfaces of the bed and carriage are chilled and lubricated from reservoirs with rollers located at intervals along the bed. The spindle, carried in cap bearings $4\frac{1}{2}$ in. by 15 in. and $3\frac{1}{2}$ by 12 in. long, is of alloy steel, hardened and ground. It is cooled by means of air which circulates through a hole extending through the spindle, and the bearings are lubricated by forced feed, with glass covered compartments through which the circulation of oil may be seen.

The wheel head is moved to and from the work by means of a large handwheel having a dial graduated to read in 0.001 in. Rapid power movement of the wheel head, in either direction and at the rate of 2 ft. per min., is furnished by a 2 hp. reversing motor which is mounted on the wheel head and operated through a drum controller.

A feature of the machine is the built-in mechanism which permits the grinding of rolls with either concave or convex surfaces. The grinding wheel head is trunnioned at the rear and the front is carried on hard-

ened steel rollers which rest on hardened cams. These cams are shaped to produce a predetermined rise to the wheel head and are rotated by change gears which give various speeds, thus producing varied amounts of crown or concavity to the roll. The correct change gears for any crown or concavity are selected readily from a graphic chart provided.

The roll carrying heads are of the two bearing type, the bearing blocks being adjustable to accommodate rolls with journals of various diameters. With this type of roll support it is said to be possible to put a roll on the centers, adjust the bearing blocks to the necks, withdraw the centers and although the necks may be of different diameters the body of the roll will be ground to the same diameter at each end. A straight ground bar, carrying an indicator, is mounted on the front of the machine to permit the operator to check the roll frequently for parallelism or amount of camber.

In this machine the water tank is part of the machine foundation and also has various compartments, the total capacity being 900 gals. The water channel in the bed also serves as a tank, and this with a capacity of 300 gal., provides a total capacity of 1200 gal.

The motor driving the grinding wheel and that driving the headstock spindle are controlled by push buttons from the operator's platform.

Collapsible Reamer and Tap for Machining Seats in Gate Valve Bodies

The machining and tapping of the seats in gate valve bodies has been one of the comparatively slow and expensive operations in the manufacture of such valves. As the thread diameter of the seat is usually larger than the pipe ends of the valve body, a tap cannot be used, which would leave the chasing tool as the only means of cutting the thread for the seat ring.

Special collapsible tools intended to facilitate this operation and which are claimed to do the work rapidly and accurately are here illustrated. The collapsible feature of these tools, which have been developed by the Landis Machine Co.'s Victor plant, Waynesboro, Pa., permit them to be inserted readily through the pipe ends of the valve body and then expanded to the proper working diameter.

Two tools are used, one fitted with plain cutters for reaming and counterboring, and the other with chasers for tapping the thread. These cutters and chasers are of the double form so as to permit machining and tapping both seats at the same set-up, and proper clearance is provided for using these cutters from either end. An adjustment of approximately $1/16$ in. either over or under size is also provided to obtain as tight or loose a fit as may be required and also to compensate for wear when the cutters are ground.

The operation of the tools is as follows: First the tool with the reaming and counterboring cutters is inserted into place and by a throw of the operating



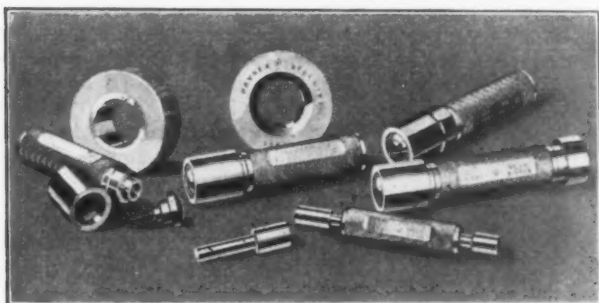
Machining Parallel Seat Gate Valve Bodies by Means of Collapsing Tool. With proper fixture, the tool may be used also for angle seat valves

handle expanded into proper position. The seat on the far side is reamed and counterbored if necessary, and then by drawing back the turret and without reversing the machine the first seat is similarly machined, by using the opposite end of the cutters. The tool is then collapsed by hand, by means of the operating handle, and withdrawn. The second tool, fitted with the chasers, is then similarly inserted and the seat on the far side tapped first. The tap is collapsed by hand at the completion of the thread, making it unnecessary to back out. The chasers are again set into tapping position and the machine reversed, the first seat being tapped while the tap is being drawn back, the threading being done by the opposite end of the chasers.

The illustrations show the machining of parallel seat valve bodies, but angle seat valves may be similarly machined by swiveling the valve body in a suitable holding fixture. Standard taps have been developed for all sizes of valve bodies from 2 in. to 8 in.

Stellite Plug and Ring Gages

Plug and ring gages in sizes ranging from 1 to 3 in. in diameter, for manufacturing use, have been added to the line of small tools being marketed by the Haynes Stellite Co., 30 East Forty-second Street, New York.



The Body of the Plug Gage is of Aluminum Alloy

To minimize the weight of the plug gages the body of the gage is of an aluminum alloy. Sizes smaller than $\frac{1}{2}$ in. have removable gaging tips that are driven in the body by a taper fit, the larger gages being made so that the gaging portion is of ring form, held in place by a cap screw. The body is knurled. The ring gages have an aluminum body cast integral and held securely by a grooved tongue on the stellite portion. Both types of gages are made to standard tolerances and are finished to 0.0001 in.

Unusual length of life is claimed for the gages and as stellite is a non-magnetic material, composed chiefly of cobalt, chromium and tungsten, metallic chips will not cling to its surface, a feature stressed as assuring accurate measurement.

To Make Attachment for Tractors

SAN FRANCISCO, July 24.—Articles of incorporation have been filed by a number of prominent California financial and industrial men for a new company to be known as the Trakford Company, with executive offices in San Francisco, and a plant in Pittsburg, Cal. The new company will manufacture a track-laying attachment for small tractors which, it is claimed, will place a track-laying tractor within reach of every farmer having use for such a machine. All of the stock of the company will be closely held, and none offered for sale. Most of the stockholders are interested in California development and industrial projects, and several of the signers of the articles of incorporation of the new company are directors of the Columbia Steel Corporation, which also has a plant in Pittsburg, Cal.

The formation of the company is said to have come about through the realization of the signers of the articles that tractor operation for the majority of farmers is still an expensive undertaking, and that the reduction of this item of farm overhead would greatly stimulate the entire country's agricultural progress.

The syndicate enlisted the services of H. C. Mont-

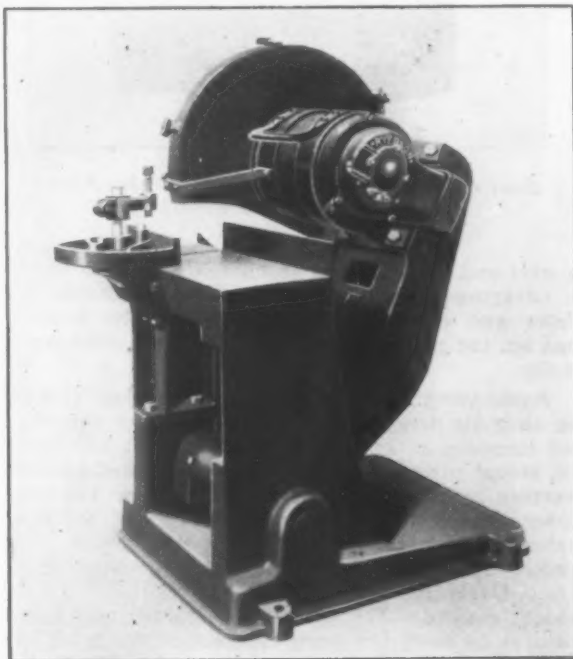
gomery, for 17 years identified with tractor interests as patent attorney, and also in various executive capacities with the Best and Holt manufacturing companies. Mr. Montgomery after studying the matter recommended a track-laying attachment suitable for a Fordson or any other similar tractor, and this recommendation was adopted.

Among those signing the articles of incorporation are: Herbert Fleishhacker, William W. Crocker, John S. Drum, J. D. Grant, Joseph Sloss, D. H. Botchford, John Franco, Frank L. Ditzler, S. F. B. Morse, E. F. Burrell and H. C. Montgomery.

Friction Saw for Cutting Small Bars and Shapes

Joseph T. Ryerson & Son, Inc., Sixteenth and Rockwell streets, Chicago, is bringing out a smaller size of its high-speed friction saw for use in cutting small bars and shapes, the quantity and size of which would not warrant investment in the company's larger machine. Operation is the same as in the larger unit.

The capacity of the new machine, which is designated as the No. 0, is for cutting 8-in., 25½-lb. I-beams, 8-in. channels, 4-in. pipe, 1½-in. rounds and 1¼-in. squares. Compactness is a feature, the floor space occupied being 28½ x 36 in., and the machine may be moved about the shop conveniently for special work. The saw blades are 24½ in. in diameter, ¼ in. thick and are mounted directly on the shaft of a 10-hp. ball-bearing motor which is built especially for friction saw duty. The blade is fed into the stock by hand. Provision is made for water cooling of the saw blade



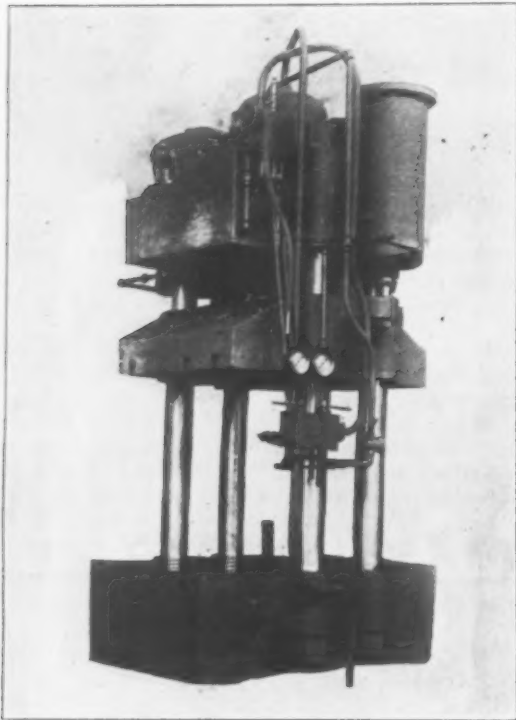
The Blade Is Fed into the Stock by Hand. Small bars and shapes may be cut rapidly

if desired, the water cooling depending upon the size of the sections cut. It is claimed that 1½-in. rounds may be cut in one-fourth of a minute and 8-in., 25½ lb. I-beams in a fraction over one minute.

The International Association of Machinists has taken drastic action to purge its ranks of all members affiliated with communist organizations. In an ultimatum to all members the union announced that connections with communist bodies must be dropped within 30 days under penalty of expulsion. The order specifically prohibits membership in the Trade Union Educational League and the Workers' Party, both directed by communist leaders. The action of the machinists' union is believed to be the forerunner of similar moves on the part of other organizations affiliated with the American Federation of Labor.

Hydro-Pneumatic Press Applied to Production Forming and Pressing

The forming and pressing of metal parts on a production basis is the function of the self-contained four-column hydraulic press here illustrated, which is being marketed by the Chambersburg Engineering Co., Chambersburg, Pa. In railroad and car shop work, the machine is said to produce car diaphragms, stiffeners,



Four-Column, 300-Ton Hydraulic Press. Pneumatic pullbacks are a feature

gussets and similar parts economically, and to be used to advantage also in bending and straightening sills, plates and other pieces. Capacities range from 200 tons up, the machine illustrated being of 300 tons capacity.

Rapid operation is said to be accomplished by utilizing shop air pressure for the movement of the platen and stripping ram to and from the work, and having the actual pressing done by means of the hydraulic pressure furnished by a pump mounted on the upper platen. Except for the four columns and the pneumatic pull back, the press is of the same design as the company's standard bushing press previously announced, features of which include accessibility and convenient control. The general design permits special features to meet the particular requirements of railroad, automotive or general machine shop work to be incorporated.

Nickel-Plating of Zinc and Zinc-Base Die Castings

Although sheet zinc and die castings consisting largely of zinc have been nickel-plated for a considerable period, more difficulty is experienced in this operation than in nickel-plating on brass and steel. An investigation was therefore made by the Bureau of Standards to determine the most satisfactory methods of operation.

When zinc is placed in a nickel solution, there is a tendency to produce a dark deposit, consisting largely of spongy nickel. To overcome this tendency, it is necessary to apply a high polarization at the cathode, i. e., the surface to be plated. It was found in this investigation that solutions containing sodium citrate, such as have been frequently used, are satisfactory in

this respect but they are more difficult to control than the ordinary types of nickel-plating solution.

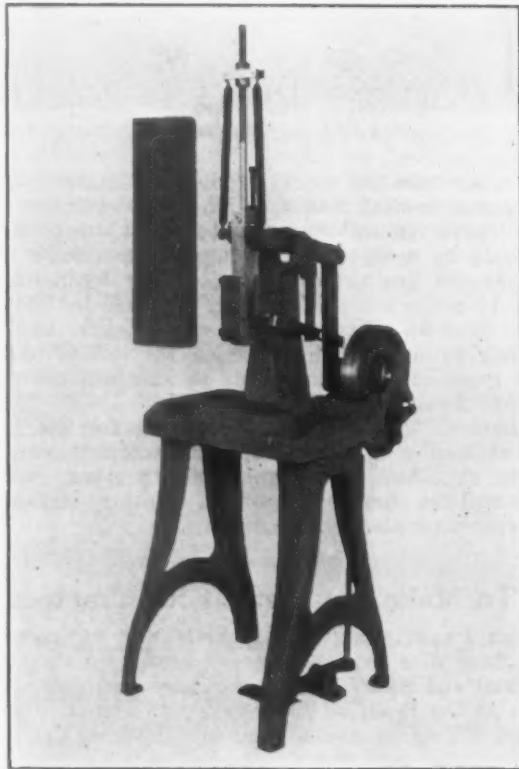
It was found that by the addition to the ordinary nickel-plating solution of a large amount of sodium sulphate (Glaubers salts), or of magnesium sulphate (Epsom salts), it was possible not only to obtain the necessary polarization but also a very high conductivity and throwing power. (By throwing power is meant the ability to plate uniformly on irregularly shaped articles.) Because of these properties the solution is also adapted for nickel-plating small steel and brass articles in rotating barrels. The suggested solution is cheap and is easily controlled by analysis.

This investigation is reported in Letter Circular No. 163 of the Bureau of Standards, copies of which may be obtained on application to the Bureau.

Power-Operated Spring Press

A recent addition to the line of the Taylor & Fenn Co., Hartford, is the power-operated spring press here illustrated, which delivers a uniform blow and is intended to be used for the same purpose as a small drop hammer or ordinary power press on the lighter classes of work.

Frequent adjustment and refitting of bearings is said to be unnecessary in this design, and ease of set up is a feature. The blow is controlled entirely by springs which may be set readily to give the drop desired, and varying thickness of the work does not have to be considered. A safety clutch is provided so that the machine will stop automatically after each stroke, even if the foot treadle is held down. If re-



Single-Acting Power Spring Press

quired, however, the press may be set to give a repeat blow.

The press illustrated, the No. 12, is single acting, but the same machine with double action is also available for holding two or more pieces together. If staking, riveting, embossing or other work is being done the amount of pressure is adjustable. The stroke of the machine is $3\frac{1}{4}$ in. The maximum distance from the ram to the bed is $7\frac{1}{4}$ in., the hole in the ram is $\frac{3}{4}$ in. and the depth of throat 4 in. The bed plate is 5 in. by 12 in. and the hole in the bed 2 in. Two 50 lb. springs are regularly furnished. The floor space required is 24 by 30 in., and the net weight is 550 lb.

IMPROVES THREAD MILLER

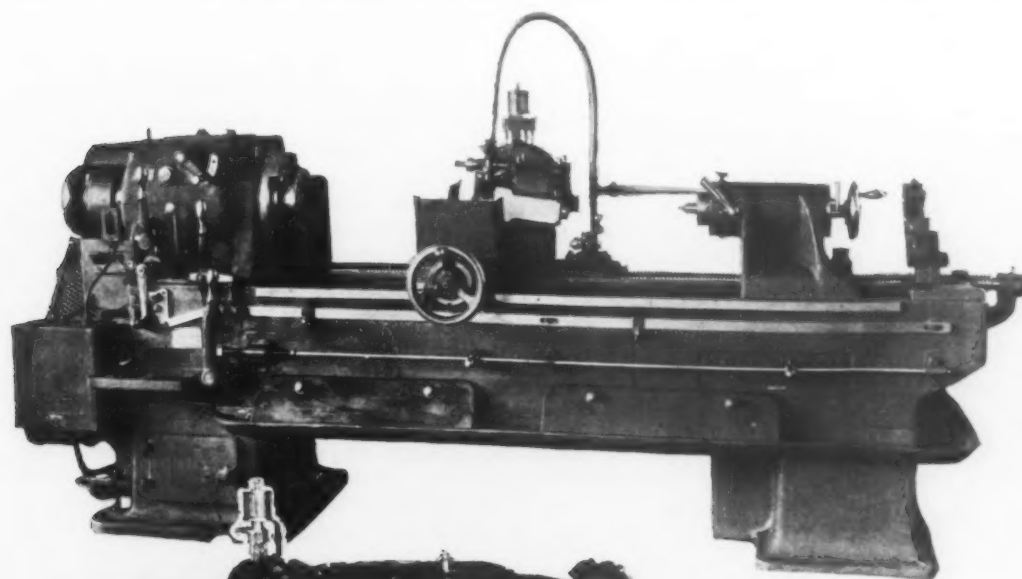
Changes in Design Permit of Faster and More Convenient Operation

Added operating conveniences and greater power, resulting in faster production, are features of a new 10-in. thread miller which has been brought out by the Pratt & Whitney Co., Hartford. The machine replaces the 12-in. model previously built by the company and although the principle of operation is the same, the design is different in several details. Two sizes, having

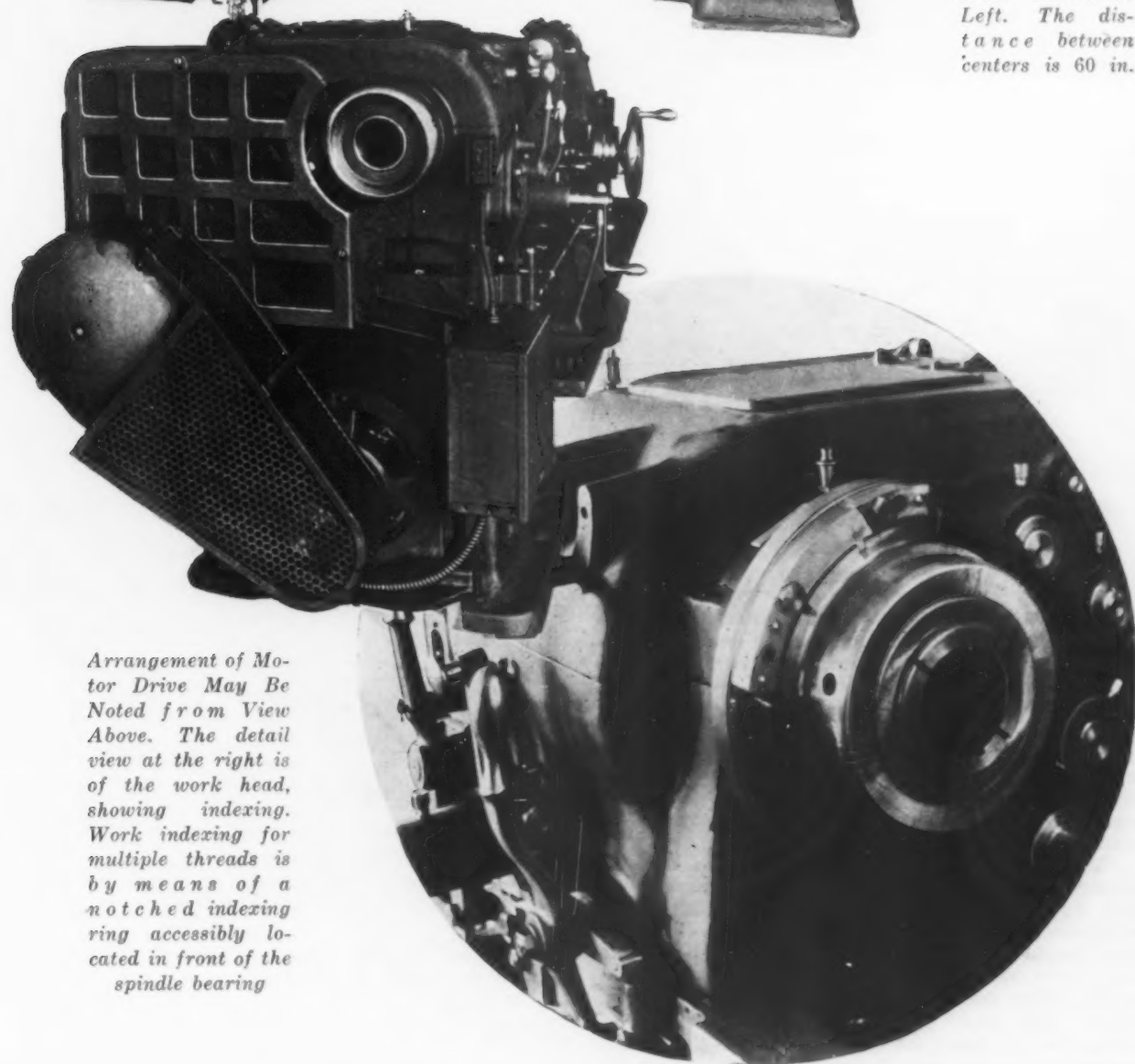
center distances of 24 in. and 60 in., respectively, are regularly built, but machines with longer center distances are available to order.

The machine is driven by a $7\frac{1}{2}$ -hp., 1750-r.p.m. motor mounted on a hinged platform within the cabinet leg beneath the headstock. The motor is belted to a friction clutch pulley on the constant-speed drive shaft. The hinged platform provides for belt tightening. For belt drive from a countershaft or line pulley the same friction clutch pulley may be used and without further change to the machine.

In general the 10-in. thread miller consists of a work head for rotating and indexing the work, an ac-



Built-In Motor Drive, Solid Indexing Ring, Improved Cutter Head, and New Cross Slide Are Among the New Features of the 10-In. Thread Miller Shown at Left. The distance between centers is 60 in.



Arrangement of Motor Drive May Be Noted from View Above. The detail view at the right is of the work head, showing indexing. Work indexing for multiple threads is by means of a notched indexing ring accessibly located in front of the spindle bearing

curate lead screw with suitable gearing for obtaining the necessary range of leads, and a cutter head which is adjustable to the various thread angles and depths. Single rotating cutters shaped to the thread form are used.

Power is taken from the constant-speed drive shaft through clutches and gearing to the work head and the lead screw, each of which has its own gear box. This drive is arranged to provide for leads from 12 threads per inch to a lead of 48 in., and for 17 work speeds from 0.04 to 0.635 r.p.m. Work indexing for multiple threads is accomplished by a notched indexing ring accessibly located in front of the spindle bearing. In the new machine the indexing ring is solid, instead of being between the spindle bearings where it was not convenient and which necessitated making it in two pieces, as in the previous model. This improvement is emphasized as having been made possible by a radical improvement in the work head design.

Three gear boxes are provided, one for work speed, another for thread leads, and the third for cutter speed, an arrangement which permits of regulating separately each of these factors, and consequently increasing the efficiency of the machine. In the previous

model the drive was by a three-step cone pulley, so that changing the belt on the cone changed the speed of the entire machine. Another improvement is in providing heat-treated gears, which run in oil, for the cutter head, which permits more power to be transmitted, so that much heavier cuts and larger work can now be taken. The cutter drive including the cutter speed gear box is lubricated from a central system. Five cutter speeds, ranging from 29.3 to 96.2 r.p.m., are provided.

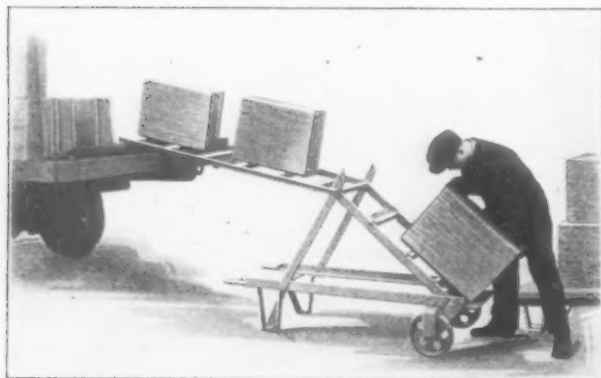
A new cross slide with a positive stop for the cross-slide screw is a feature stressed as having proved a distinct convenience in that it enables the operator to return the cutter to exact depth for milling the succeeding piece of work after backing the cutter slide out at the end of a cut. Previously it was necessary to count the number of turns of the handwheel as the cutter was backed away. The cross slide has sufficient travel to accommodate work 10-in. in diameter with a depth of cut of $1 \frac{9}{16}$ in.

The tailstock has been made heavier, and is provided with a double clamping arrangement to withstand the heavier cuts for which the machine is designed.

Hand Truck with Utility Features

A heavy-duty hand truck equipped with a collapsing roller horse, which is intended to increase the usefulness of the equipment, is shown in the accompanying illustrations.

In addition to the uses to which a hand truck may be put, the collapsing horse feature permits the truck to be employed in removing pipe, tubing and other lengthy material from cars or trucks. Another use mentioned is in supporting steel while punching and shearing, the work being shifted readily because of



Hand Truck with Collapsing Horse and Roller Conveyor Extensions to Facilitate Unloading Auto Trucks

the roller at the top of the support. When the horse is not used one of the collapsing members may be swung out, permitting the unit to be employed as a rack truck. A 6-ft. "super" extension is available for converting the truck into a roller conveyor, as illustrated, for use in unloading heavy boxes from motor trucks and other vehicles, and also for conveying products from a pile to the floor, or from a machine table to a platform. For use as a gravity roller conveyor, three rollers are added to the extension of the truck. "Super" extensions of various lengths are available.

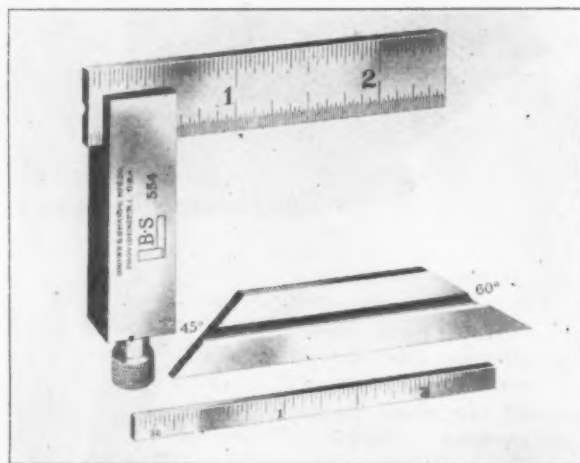
The truck is known as the Liftsaver and is being marketed by the Liftsaver Mfg. Co., 30 Church Street, New York. It is entirely of steel, angles being used wherever possible and the ends of the side bars are hand forged into handles, which is said to eliminate a source of weakness frequently found in the usual hand truck. When the apron or extension is let down the forged steel nose, being integral with the apron, swings up and under, out of the way. The shafts that suspend the apron and the axles which support the

wheels are of cold-rolled steel. The wheels are of chilled iron. Two sizes of the truck are available, one of which has side bars 54 in. long and an extension 17 by 30 in., and the other, side bars 66 in. long and an extension 20 by 36 in. The weights are 130 lb. and 165 lb. respectively. A lighter truck, weighing 70 lb., and having an extension 13 in. by 24 in., is also being marketed.

Square with Adjustable Blades

A new square with three blades which are adjustable to length and reversible has been added to the line of the Brown & Sharpe Mfg. Co., Providence. The tool, designated as the No. 554, is adapted to a variety of uses, being especially adaptable to the demands of toolmakers on small work.

With the wide blade, the tool is a graduated try square or depth gage, and being adjustable may be used in inaccessible places. This blade and the bevel blade are $29/64$ in. wide. The bevel blade, which has both 60 deg. and 45 deg. angles and is also reversible, may be used in connection with the grinding of thread



The Three Blades, Which Are Adjustable to Length and Reversible, Permit the Square to Be Used on a Variety of Work

tools and in laying out angles and miters. The narrow blade is $\frac{1}{8}$ in. wide and graduated, and is intended for use in inaccessible places, to square up small slots, measure the depth of counterbores and small holes. The blades are tempered and ground, and the body of the tool is hardened and ground.

Many German Plants Shut Down

Despite the Belgian Strike and the Threatened British Labor Tie-up, Foreign Iron and Steel Markets Show No Improvement in Price or Demand

(By Cablegram)

LONDON, July 28.

LABOR conditions are still unsettled and government intervention is possible. Pig iron is generally dull in the face of the coal situation, though the continent has bought several small parcels of Cleveland iron. Some high grade east coast hematite has been sold to American interests on the Atlantic seaboard, while 1500 tons of special Cleveland foundry iron has been shipped to the Pacific Coast. Only six furnaces are now blowing on the northwest coast. The demand for foreign ore is stagnant. Sellers of Bilbao Rubio would probably accept 20s. (\$4.86) c.i.f. Tees.

Finished iron and steel market is quiet, with few attractive inquiries. Shipbuilding works especially need orders. The Belgian strike position is unchanged and the market at a standstill. Prices are generally easier on French, German and Luxemburg competition, but there is little substantial business. Merchants sold steel bars £5 7s. 6d. (1.17c. per lb.) f.o.b. No. 3 Belgian iron has been done at £7 5s. (1.57c. per lb.) delivered Midlands.

A Belgian wire rod syndicate has been formed by Ougree, Athus and Boel, the first-named being in charge of price determination and sales. The German output of iron and steel has been still further curtailed. The Krupps have blown out two furnaces in Rheinhausen and are closing down the Annen Steel works. Other German iron and steel manufacturers are reported to be discharging workers. Tin plate is dull and with the approach of the annual vacation week many of the works are preparing to close down. Few will reopen (except to finish off existing rollings) if the threatened coal strike occurs.

Galvanized sheets hold firm. India has not been taking any quantities recently, but other foreign mar-

kets are fairly active. Japan is showing some interest in black sheets and some business is being done at £15 5s. (3.31c. per lb.) f.o.b.

MILLS MISMANAGED

Excessive Costs in German Mills Charged to Poor Methods

BERLIN, GERMANY, July 14.—The debate on the new tariff bill before the Reichstag trade committee has brought out charges of inefficiency and wastefulness against German rolling mill executives. The opponents of high duties (the democrats) claim that the real need of the German iron and steel industry is not a high tariff but more economical and standardized production. They declare that while the blast furnaces and steel mills work as efficiently as in America, the system practised in rolling mills is wasteful and dilatory. Charges of bad organization, excessive overhead charges and mismanagement have been made. The socialists have, as usual, demanded complete abolition of the iron and steel duties.

The trade war between Poland and Germany continues, and business between the two countries has practically stopped. The Franco-German negotiations for a provisional commercial treaty have so far led to no conclusion, and they have been suspended until Sept. 15, with the understanding that meantime neither country will take aggressive tariff measures against the other.

An agreement has been reached as regards the Saar district, which is in customs union with France under the Versailles treaty, but which would suffer badly if cut off from Germany, its natural market and source of supply. The agreement provides for free import into Germany of Saar goods, including metal

British and Continental European prices per gross ton, except where otherwise stated, f.o.b. makers' works, with American equivalent figured at \$4.86 per £1, as follows:

Durham coke, del'd..	£1 1½s.	\$5.22
Bilbao Rubio ore†	1 0½s.	4.98
Cleveland No. 1 fdy..	3 15s.	18.23
Cleveland No. 3 fdy..	3 11s.	17.27
Cleveland No. 4 fdy..	3 10½s.	17.13
Cleveland No. 4 forge	3 10s.	17.01
Cleveland basic	3 11½s.	17.39
East Coast mixed....	3 16½s.	18.59
East Coast hematite..	4 19s.	24.06
Ferromanganese	15 10s.	75.33
*Ferromanganese	15 5s.	74.11
Rails, 60 lb. and up..	8 10s. to £9 0s.	41.31 to 43.74
Billets	6 10s. to 7 5s.	31.59 to 35.23
Sheet and tin plate		
bars, Welsh	6 10s. to 6 15s.	31.59 to 32.80
Tin plates, base box..	0 18¾s. to 0 19¼s.	4.56 to 4.68
		C. per Lb.
Ship plates	8 5s. to 8 15s.	1.79 to 1.90
Boiler plates	12 10s. to 13 0s.	2.71 to 2.82
Tees	8 5s. to 8 15s.	1.79 to 1.90
Channels	7 10s. to 8 0s.	1.63 to 1.74
Beams	7 5s. to 7 15s.	1.57 to 1.68
Round bars, ¾ to 3 in.	8 15s. to 9 5s.	1.90 to 2.01
Galv. sheets, 24 gage	16 0s. to 16 5s.	3.47 to 3.53
Black sheets, 24 gage	11 10s.	2.59
Black sheets, Japanese		
specifications	15 5s.	3.31
Steel hoops	10 15s. and 12 10*	2.33 and 2.71*
Cold rolled steel strip,		
20 gage	16 0s.	3.47

*Export price.

†Ex-ship, Tees, nominal.

Continental Prices, All F. O. B. Channel Ports

Foundry pig iron:(a)				
Belgium	£3 1s.	to £3 2s.	\$14.82	to \$15.07
France	3 1	to 3 2	14.82	to 15.07
Luxemburg	3 1	to 3 2	14.82	to 15.07
Basic pig iron:(a)				
Belgium	3 0	to 3 1	14.52	to 14.82
France	3 0	to 3 1	14.52	to 14.82
Luxemburg	3 0	to 3 1	14.52	to 14.82
Billets:				
Belgium	4 14		22.84	
France	4 14		22.84	
Merchant bars:				C. per Lb.
Belgium	5 8		1.17	
Luxemburg	5 8		1.17	
France	5 8		1.17	
Joists (beams):				
Belgium	5 4		1.13	
Luxemburg	5 4		1.13	
France	5 4		1.13	
Angles:				
Belgium	5 18½	to 6 0	1.28	to 1.30
½-in. plates:				
Belgium	6 10		1.41	
Germany	6 10		1.41	
¾-in. ship plates:				
Luxemburg	6 10		1.41	
Belgium	6 10		1.41	

(a) Nominal.

and engineering products; while the French minimum tariff will be applied to German food stuffs, semi-finished steel, and machinery delivered to the Saar.

The Franco-German agreement concerning iron and steel, reported from here a fortnight ago, cannot be regarded as definitive in view of the non-completion of the Franco-German commercial treaty. The concession in exchange for which Germany was to admit French, Saar and Luxemburg iron on special terms was the application of the French minimum tariff to German manufactured goods. This French concession, however, can be made only by commercial treaty. The iron agreement was contracted as a private agreement for good reasons.

Had Germany in her commercial treaty with France undertaken to admit French iron at a reduced duty rate, England, Belgium and all other countries which have or will have most-favored-nation agreements with Germany would enjoy the same privilege, and Germany would be flooded with foreign iron. The agreement prevents that by enacting that while French iron will bear the full German import duty the German raw steel syndicate will pay half the amount, and will assess the cost upon its member firms. In substance this is a device for evading the most-favored-nation obligations in Germany's commercial treaties, but technically the German Government can claim that it has nothing to do with the matter.

While it is true that Germany can today supply herself with iron and steel, the new agreement has the effect of partly restoring pre-war conditions. Germany's reasoning is that if no agreement is reached, the surplus Lorraine, Saar and Luxemburg iron would be dumped on the world market at impossibly low prices, thereby facilitating competition from other countries in the engineering, shipbuilding, and other metal consuming industries. This will now be avoided; and Germany will get the necessary facilities for selling her metal manufactured goods to France.

Not much progress has been made toward further creation of syndicates at home. The raw steel syndicate has been prolonged until October, 1926. For July the syndicate has decreed a production cut of 25 per cent, as against 20 per cent in June. The Charlottenhuetten Corporation has rejoined the syndicate. Negotiations for a thick sheets syndicate are about to begin; and attempts are being made to found one for wire finished goods.

The iron and steel market has been increasingly dull. The 25 per cent reduction of output in July was

insufficient to please some members of the raw steel syndicate, who demanded 30 per cent. Delivery terms have considerably shortened; and there is a strong tendency toward illegitimate price cutting at home, and to dumping abroad.

Bars are very little in demand, and the market for sheets has weakened. In particular the Siegerland works complain of lack of orders for sheets, and in thin sheets these works are cutting prices severely. The market for semi-finished material is unsatisfactory. The improvement in the domestic building trade continues, but there is very little demand for steel for industrial or transport construction. Structural steel for bridge building is depressed and this branch of the industry is stated to be producing for home use only 160,000 tons a year as against an average of 400,000 tons before the war. Some considerable domestic orders have been received for railroad equipment but none for rolling stock. In the foreign rolling stock market competition is intense.

In South Germany conditions as regards domestic business are somewhat better, but here production is checked by financial difficulties. Export business in agricultural machinery has improved. Exports in the first four months of 1925 totaled 15,529 metric tons, as against 7125 tons in the same months of 1924, and 13,084 in the same months of 1913. Very large exports have taken place to Russia, which bought practically no German agricultural machinery in the first months of last year. Italy has also been a good buyer.

The pipe syndicate has made agreements with trading organizations in several European countries, with the aim of pushing German pipe to vie with competitors. The Thyssen concern has obtained a £420,000 order for pipe from the government of South Africa. Krupps have got a new order to deliver 6,500,000 roubles worth of agricultural machinery to Russia, granting credit until October, 1926. The Wagenring A. G., a combine including the van der Zypen, Augsburg-Nurnberg, and other engineering concerns, has a Swedish order for 100 railroad cars for ore transportation.

Krupps and the Rhenish Metal Corporation have come to an agreement for joint activity in manufacture of locomotives and cars. Both corporations took up this branch after the war. Berlin municipality has decided to spend 50,000,000 marks on construction of a 200,000 kilowatt electrical station. Increasing orders for electrical and transport material are expected from Russia as a result of the good crop conditions reported from there.

MANGANESE OUTPUT GROWS

Shipments of High-Grade Ore Increased 79 Per Cent in 1924

Shipments of high-grade manganese ore from United States mines in 1924 made a large increase over 1923. The Bureau of Mines reports shipments in 1924 of 56,515 gross tons, compared with 31,500 tons in 1923. This increase of 79 per cent was due mainly to increased shipments from Montana, which again produced considerably more high-grade manganese ore than all the other States together, and the first large shipments of ore from the State of Washington. The ore from Washington contained 52.88 per cent of manganese and was used in the production of ferromanganese. Most of the Montana ore in 1924 was chemical ore from Philipsburg. Less than 45 per cent of the high-grade shipments of the entire country in 1924, however, was suitable for chemical uses, against 65 per cent in 1923, due mainly to greater shipments of ore for other uses. The tariff on manganese continues to encourage new operators.

Shipments of domestic ore containing 10 to 35 per cent of manganese decreased to 286,470 gross tons, valued at \$929,390, in 1924, from 319,666 tons, valued at \$1,158,628, in 1923. Shipments of ore containing 5

to 10 per cent manganese decreased to 587,026 gross tons, valued at \$1,713,943, in 1924, from 1,072,457 tons, valued at \$3,598,327, in 1923. The large decrease in shipments of this grade is in part due to classification once more as iron ore, of the ore from the Tilden mine of the Oliver Iron Mining Co. The bureau points out that "in just one year, 1923, the ore from this mine contained sufficient manganese to justify its classification as a manganiferous iron ore instead of as an iron ore. On the other hand, the Ottawa mine of the Montreal Mining Co. again in 1924 shipped ore which had a manganese content sufficiently high to cause it to be included with the ore containing 5 to 10 per cent of manganese."

Coke will become a keener competitor of coal, in the opinion of C. A. Connell, chief engineer of the Anthracite Coal Service, Philadelphia, speaking before coal merchants at Atlantic City. Quoting from recent statistics, he directed attention to the advance in coke sales over a given area from 400,000 tons in 1913 to 2,250,000 tons in 1922, and emphasized the growing tendency of gas companies to use coal instead of oil, thereby increasing the output of coke as a by-product. He estimated the yearly consumption of oil in power plants of the country at the equivalent of 26,000,000 tons of coal, stating that 50 per cent of this was consumed in the anthracite territory.

Iron and Steel Exports Decline

June Smallest in Four Months—Imports Near High
for Year—Fiscal Year Exports Nearly
18 Per Cent Under 1924

WASHINGTON, July 28.—Showing a decline of 13,765 gross tons, exports of iron and steel in June of the present year totaled 136,847 tons as against 150,612 tons in May. For the fiscal year ended with June, 1925, exports aggregated 1,647,024 tons, a drop of 362,319

tons under the fiscal year ended with June, 1924, when exports totaled 2,009,353 tons.

In contrast to the exports, there were sharp gains made in imports. During June of the current year incoming shipments of iron and steel amounted to 82,330 tons as compared with 68,117 tons in May while, for the fiscal year of 1925, they aggregated 749,393 tons as against 505,383 tons during the fiscal year 1924.

Canada led as the principal destination of exports in June, taking 45,935 tons, more than trebling the shipments of 15,078 tons to Cuba, the second most important buying country. Steel rails constituted the heaviest single item of exports, Canada being the leading country of export of this item, taking 2298 tons of 15,660 tons exported that month. Cuba was the leading country of exports of rails during the fiscal year, taking 56,752 tons of the total shipments of 180,493 tons. Tin plate was the next most important single item of export the shipments amounting to 11,284 tons of which Canada took 2884 tons and Japan 2812 tons. During the 12 months Japan was the most important source of shipments of American tin plate, taking 42,697 tons out of the total of 140,439 tons.

The increase in imports in June over May was due

Sources of American Imports of Iron Ore

(In Gross Tons)

	June		Twelve Months Ended June	
	1925	1924	1925	1924
Spain	16,938	.....	142,065	112,286
Sweden	13,905	7,929	270,453	439,497
Canada	1,276	106	6,456	12,212
Cuba	45,000	26,800	397,816	544,118
Chile	71,000	82,200	1,135,175	859,700
French Africa	29,250	30,090	209,689	294,716
Other countries	5,829	11,096	27,654	98,078
Total	183,198	158,221	2,189,308	2,360,607

United States Exports of Steel Products to Principal Countries in June, 1925

(In Gross Tons)

Canada	45,935	Brazil	4,539
Cuba	15,078	Argentina	4,427
Italy	10,100	United Kingdom	3,912
Mexico	7,629	Philippine Islands	2,922
Japan	7,257	Australia	2,060
Chile	6,252	Dominican Republic	1,946
China	5,481	Guatemala	1,491
Colombia	4,833	Panama	1,416

Imports of Iron and Steel into the United States

(In Gross Tons)

	June		Twelve Months Ended June	
	1925	1924	1925	1924
Pig iron	35,657	28,697	325,199	187,714
*Ferromanganese	4,023	1,993	69,719	61,552
Ferrosilicon	236	354	7,572	11,705
Scrap	7,290	2,326	87,454	75,077
Pig iron, ferroalloys and scrap	47,206	33,370	489,944	336,048
Steel ingots, blooms, billets, slabs and steel bars	2,506	3,572	34,796	36,688
Wire rods	897	704	6,673	6,541
Semi-finished steel	3,403	(a) 4,276	(a) 41,469	(a) 43,229
Rails and splice bars	6,669	6,220	46,495	36,049
Structural shapes	11,350	7,230	67,170	25,137
Boiler and other plates	16	990	795	3,929
Sheets and saw plates	192	495	3,583	3,337
Steel bars	6,381	.....	28,307	.....
Bar iron	365	716	9,844	5,772
Tubular products (b)	5,301	6,278	46,173	31,755
Nails and screws	285	13	835	599
Tin plate	20	58	348	1,502
Bolts, nuts, rivets and washers	2	4	117	180
Round iron and steel wire	502	194	3,229	3,480
Flat wire and strip steel	160	230	1,953	2,148
Wire rope and insulated wire, all kinds	138	129	6,201	9,311
Rolled and finished steel	31,381	22,557	215,050	123,199
Castings and forgings	340	366	2,930	2,907
Total	82,330	60,569	749,393	505,383
*Manganese ore	17,020	20,726	186,939	267,357
Iron ore	183,198	158,221	2,189,308	2,360,607
Magnetite	10,628	5,790	63,129	67,585

(a) Considerable quantities of steel bars included.

(b) Considerable quantities of cast iron pipe and fittings included.

*Reported by manganese content only. There were no shipments in June, 1925, of manganese ore from Cuba.

†Beginning with Jan. 1, 1925, steel bars are reported separately from semi-finished products.

Exports of Iron and Steel from the United States

(Gross Tons)

	June		Twelve Months Ended June	
	1925	1924	1925	1924
Pig iron	2,507	2,057	23,563	40,596
Ferromanganese	17	1,003	4,204	4,120
Ferrosilicon .....	.....	4	.....	1,031
Scrap	12,985	24,562	70,293	120,553
Pig iron, ferroalloys and scrap	15,509	27,626	104,060	166,300
Ingots, blooms, billets, sheet bar, skelp	5,231	10,359	88,058	83,353
Wire rods	2,573	819	19,930	36,391
Semi-finished steel	7,804	11,178	107,988	119,744
Iron bars	560	796	4,543	6,756
Steel bars	7,182	9,419	96,752	133,017
Alloy steel bars	226	72	3,407	2,872
Plates, iron and steel	8,378	7,047	86,174	101,471
Sheets, galvanized	9,600	10,195	144,784	99,128
Sheets, black steel	5,346	8,170	102,612	166,802
Sheets, black iron	1,136	1,054	11,863	11,894
Hoops, bands, strip steel	3,427	2,151	34,053	37,409
Tin plate,terne plate, etc.	11,284	10,231	140,439	170,523
Structural shapes, plain material	7,503	8,998	98,701	103,036
Structural material, fabricated	4,122	4,772	66,346	79,892
Steel rails	15,660	18,624	180,493	253,521
Rail fastenings, switches, frogs, etc.	3,980	3,898	32,604	41,794
Boiler tubes, welded pipe and fittings	16,376	15,942	201,136	222,748
Plain wire	3,068	2,721	31,510	66,433
Barbed wire and woven wire fencing	5,216	9,565	85,349	75,541
Wire cloth and screening	143	212	1,318	2,244
Wire rope	296	556	4,070	4,815
Wire nails	489	1,362	9,549	47,621
Other nails and tacks	595	644	8,645	7,908
Horseshoes	15	160	758	1,028
Bolts, nuts, rivets and washers, except track	1,299	1,529	17,696	17,791
Rolled and finished steel	105,901	118,118	1,362,802	1,654,244
Cast iron pipe and fittings	3,014	2,725	29,517	28,925
Car wheels and axles	2,161	2,719	23,425	21,985
Iron castings	840	705	8,544	9,491
Steel castings	290	534	4,982	6,302
Forgings	127	165	1,913	2,362
Castings and forgings	6,332	6,848	68,381	69,065
All other	*1,201	.....	*3,793	.....
Total	136,847	163,770	1,647,024	2,009,353

*Beginning with April, 1925.

Cold Working on Bolts and Nuts

IN Fig. 1 is shown a battery of cold-heading machines at the plant of the Buffalo Bolt Co., North Tonawanda, N. Y., each machine differing from the other only as to capacity. Fig. 2 shows another battery of cold-working machines, these being used for cold-working nuts. Both batteries of machines are entirely automatic in character, and are electrically driven.

Stock from a reel of coiled wire is fed into the ma-

chine by means of a pair of rolls. In cold forging a carriage bolt, for example, a pair of dies forms the neck on the bolt, while a domino, acting as a plunger, upsets the head. After being fed into the die, the stock runs up against an adjustable stop set to the length of bolt wanted. The dies now close on the material, to prevent it from slipping, and then automatically move on a slide to a position in front of the

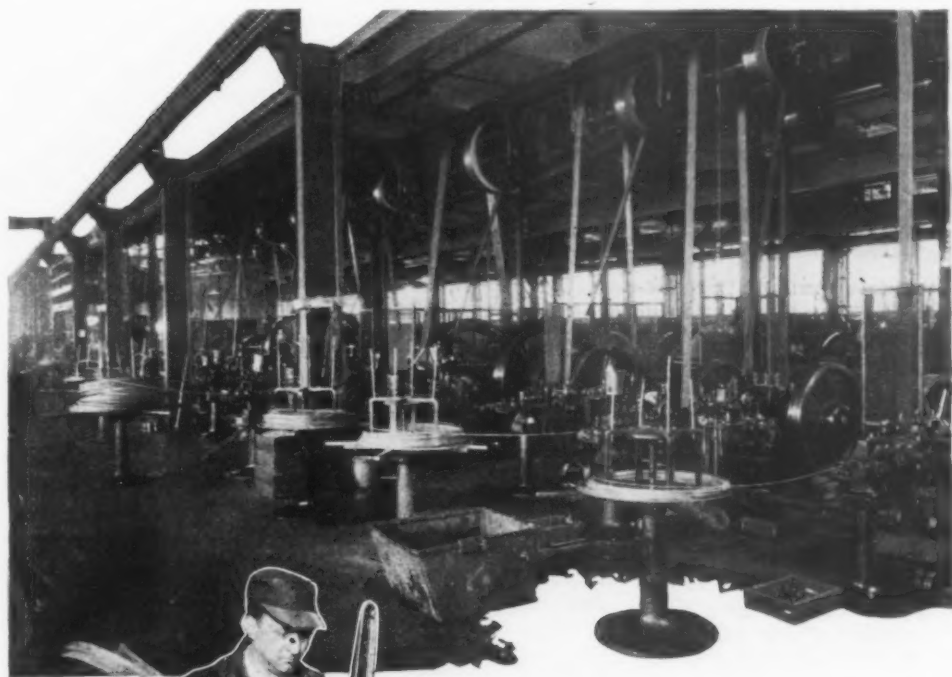
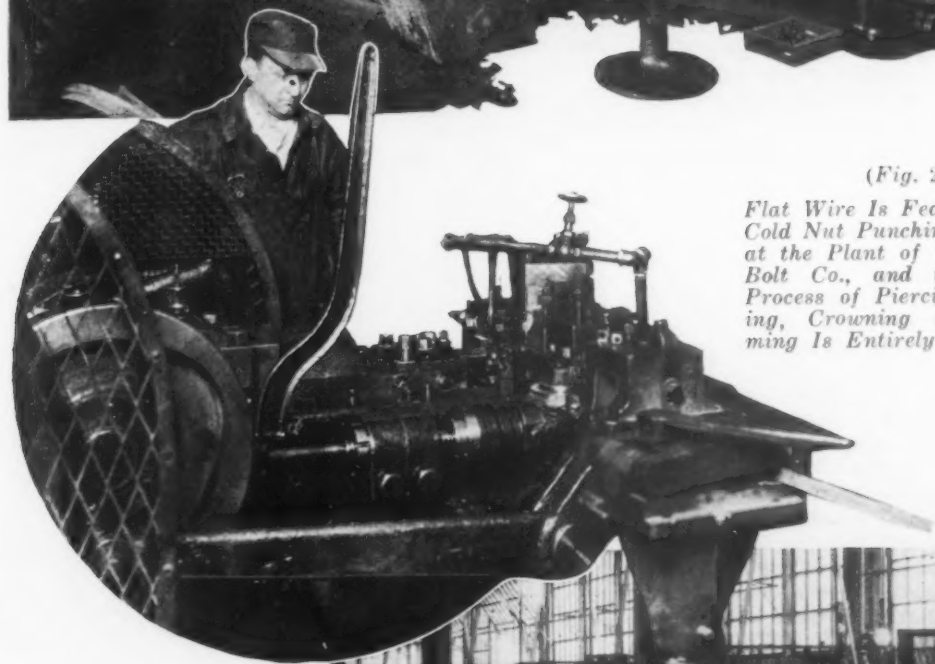


Fig. 1

Reels of Coiled Wire Are Fed into These Automatic Cold Heading Machines, Bolts Are Automatically Cut to Length, Dies Grip the Stock and Form the Neck of the Bolt, While a Plunger Upsets the Head. If more than one blow of the plunger is required to form the bolt, an annealing process generally follows



(Fig. 2

Flat Wire Is Fed Into This Cold Nut Punching Machine at the Plant of the Buffalo Bolt Co., and the Entire Process of Piercing, Punching, Crowning and Trimming Is Entirely Automatic



Fig. 3

These Automatic Cold Nut Punching Machines Are Electrically Driven, and Each One Will Turn Out About 5000 $\frac{1}{4}$ -in. Nuts per Hour, or 40,000 a Day

domino. In doing this the material is cut off to length.

The domino advances and hits the projecting stock a single blow or a number of successive blows, depending on the size head being forged. If more than one blow of the plunger is necessary to upset the stock, generally an annealing process is employed following heading operations, to prevent the stock from cracking. In cold-working bolts, a round head is formed. If a square head is wanted, such as with a machine bolt, the bolts must be passed through a trimming machine for shearing the heads to exact size and shape.

In cold working square shaped nuts, (see Fig. 3 for detailed view), the flat wire material from which the nuts are made is again in coil form and is held in position on a revolving, upright standard. The end of the coil is inserted in the machine opening and between two rolls; it now feeds automatically into the machine until the complete coil has been consumed. In cutting

and forming the nut, a piercing punch first pierces the hole. The stock continues forward a predetermined distance, a cut-off punch advances and cuts off stock.

A pilot pin inside the cut-off punch now carries the semi-finished nut to a position in front of the crowning die. This latter advances and crowns the nut. The slide holding both the crowning die and trimming die now moves upward until this latter die is in position in front of the crowned nut. With the cut-off punch acting as the pusher, the pilot pin holding the nut in position, these two tools advance simultaneously and force the nut through the trimming die. The nut is thus trimmed to exact size and shape. It is now ready for the final operation of tapping.

This automatic process of piercing, punching, crowning and trimming is exceedingly rapid. Over a working day the output on a regular 1/4-in. nut will average about 5000 pieces per hour.

To Show Machine Forging Possibilities at Tiffin, Ohio

With more than 60 machines in operation under production conditions, visitors to the second exposition of forging and bolt and nut machinery to be held by the National Machinery Co. at Tiffin, Ohio, Aug. 21 to 26, will have an opportunity to witness an impressive demonstration of recent progress in that field. Methods and machines not previously shown will be in operation, the new machines being said to have widened the scope of machine forging so that the "impossible" job of yesterday is the "practical" job of today. Radical changes of design are said to permit of new standards of forging quality and finish.

Among the exhibits will be a complete line of the company's high-duty forging machines ranging from 1-in. unit to a large 5-in. machine which will be in operation on a variety of intricate work. The dies and work done have been selected to show all phases of machine forging, such as punching, expanding, piercing, upsetting, etc., and complete information as to the design of the dies, steel used, heat treatment and other details will be available. Data on furnaces, motors and other accessory equipment will also be obtainable and a new idea in a continuous furnace will be a feature.

A complete bolt and nut plant will be in operation. New methods of heating, employing a variety of heaters, from the oil-fired cut blank unit to the electric heater will be demonstrated. A complete line of bolt-heading machines, including high-speed stop-motion headers, automatic feed semi-hot headers, high-duty headers and hammer headers will be under power. A new small size automatic semi-hot header making bolts at unusually high speed is expected to be a center of interest, as also stop motion headers making machine bolts of better quality and at higher speed than formerly. The hammer headers and large size semi-hot automatic feed machines to be shown will, it is thought, prove of unusual interest to those of wide experience in machine forging.

Nuts will be manufactured, burred and tapped, and several sizes of automatic tappers not previously shown will be in operation. An automatic bolt trimmer for hexagon as well as square heads will be among other new items. Pointers and roll threaders will be shown, and a demonstration of the speed and accuracy of bolt centers will be a feature. Vertical shears cutting square ends, washer machines utilizing scrap plate and chaser grinders will also be shown.

The International Railway Master Blacksmiths Association, which will hold its annual convention in Cleveland, Aug. 18 to 20, will be guests of the National company Friday, Aug. 21. Members of the association and their families will be brought down from Cleveland in a special train, and will be guests of the company at luncheon and dinner. The exposition will be open to other railroad and industrial executives on Aug. 24, 25 and 26, those attending the exposition at this time being the guests of the National company during their stay in Tiffin.

A similar exposition, the first, was held by the company at Tiffin during August, 1910, as noted in THE IRON AGE of Aug. 4 of that year.

Sharp Decline in British Exports in June

WASHINGTON, July 28.—Representing a decrease of approximately 15 per cent under May, export of iron and steel from Great Britain during June totaled 275,652 gross tons, according to a cablegram received by the Department of Commerce from acting attache Mowatt M. Mitchell, London. A decline also was made in imports in June, which amounted to 201,716 tons as against 205,424 tons in May. Import and export figures of British foreign trade in iron and steel for May and June of the present year follow in gross tons:

	Imports		Exports	
	May	June	May	June
Pig iron and ferroalloys...	20,383	16,015	47,303	41,594
Ingots, blooms, billets and slabs	84,806	94,637	932	574
Iron bars, rods and angles	23,283	18,343	3,200	3,178
Steel bars, rods and angles	21,407	21,674	23,886	19,013
Structural steel	6,993	8,239	6,081	4,255
Hoops and strips	4,524	4,160	5,585	5,308
Plates and sheets	13,603	12,917	27,935	27,134
Galvanized sheets .....	.....	.....	60,404	51,860
Tin plate .....	.....	.....	42,705	39,837
Cast tubes, pipes and fittings	3,010	2,641	7,966	8,496
Wrought tubes, pipes and fittings	3,893	3,762	19,188	13,437
Rails	3,175	3,703	28,220	13,652
Railroad material, other than rails	1,278	1,039	10,307	13,745
Wire	4,834	4,690	5,827	5,308
Wire cables and rope .....	.....	.....	2,268	1,670
Wire nails, including staples	4,795	4,839	345	294
Wire manufactures, not elsewhere specified	735	564	1,705	1,201
Nails, tacks, rivets and washers	439	642	1,709	1,403
Bolts and nuts, including screws for metals	761	1,059	2,705	2,277
Iron and steel castings in the rough	448	440	135	312
Iron and steel forgings in the rough	715	854	136	50

League of Nations Representative at Safety Congress

The International Labor Conference, a department of the League of Nations, will send a delegate to the fourteenth annual safety congress of the National Safety Council which will be held at Cleveland, Sept. 28 to Oct. 2. The foreign membership of the National Safety Council has grown considerably since W. H. Cameron, managing director, addressed the International Labor Conference at Geneva, Switzerland. There are now more than one hundred foreign members living in 30 different countries, among them the Argentine Republic, Brazil, Chile, Australia, Canada, Mexico, Colombia, Uruguay, Sweden, Switzerland, Poland, Belgium, Rumania, British West Indies, Czechoslovakia, France, Finland, Germany, Hungary, India, Ireland, England, Italy, Japan, Norway, Denmark, Netherlands and New Zealand.

BETHLEHEM'S EARNINGS

Second Quarter \$2,000,000 Over Last Year— President Grace Expects Fall Activity

Earnings of the Bethlehem Steel Corporation for the six months ended June 30 showed an increase over the same period of last year. The improvement was due chiefly to an increased volume of business and the company's effort in reducing operating costs in the face of substantially lower selling prices. Billings for the June quarter were made on a basis of \$6 a ton under the average for the second quarter of 1924.

Total earnings for the second quarter this year were \$9,708,528 compared with \$10,399,316 for the first quarter and \$7,400,894 for the second quarter of last year. Surplus after all charges and preferred dividend in the June quarter, was \$2,347,400, equivalent to \$1.31 a share on common stock, against \$1.66 in the previous quarter and only 11 cents for the second quarter of 1924.

Comparative income accounts for the second quarter, 1924 and 1925, appear below:

	Second Quarter 1925	Second Quarter 1924
Net earnings.....	\$9,708,528	\$7,400,894
Interest, bonds, etc.....	3,301,768	3,189,173
Balance	\$6,406,760	\$4,211,721
Depreciation, etc.....	2,983,569	2,933,444
Net income	\$3,423,191	\$1,278,277
Dividend on pfd.....	1,075,791	1,075,110
Surplus	\$2,347,400	\$203,167

Income figures for the first half year compared with the first half of 1924 are as follows:

	1925 First Half	1924 First Half
Total income	\$20,107,844	\$17,950,043
Int., bonds, dis., etc....	6,639,363	6,268,771
Net income	7,494,707	5,798,152
Pfd. dividends	2,151,428	2,149,713
Surplus	5,243,279	3,648,439

The value of orders on hand at the end of June was \$50,342,813 compared with \$665,921,289 on March 31 and \$40,196,938 on June 30, 1924. Operations throughout the second quarter were well maintained, averaging 67.1 per cent of capacity, against 77.5 in the first quarter and only 47.7 in the second quarter of 1924. Operations at present are slightly under 60 per cent of capacity, a very favorable situation when compared with 31.1 per cent, which was the average operating schedule for July one year ago.

President Sees Improvement Ahead

President Eugene G. Grace, in his comments on current conditions, pointed to the vast improvement in conditions within the industry as compared with last summer. "The completion of rail and accessory orders for the railroads, which is seasonable business usually placed in the third and fourth quarters, is accountable," he said, "for the decrease in unfilled orders." Mr. Grace does not see anything alarming in foreign competition, which he believes is declining. "If anything," he said, "it has been a little bit lessened. However, we may look for foreign competition. It is to be expected."

"The demand for general lines of steel products," he added, "has held substantially uniform throughout the quarter and sufficiently to about support the present rate of operations. All tendency to further price decline has been checked and in some instances an increase has taken place, citing as an example, sheets and steel scrap."

"With a current mid-summer demand sufficient to support an operation of approximately 60 per cent of capacity for the steel industry as a whole and with no accumulation of stocks, it is reasonable to assume that early fall demand will require a substantial increase in production."

Departure in Teaching Metallurgy Instituted at Harvard University

Instruction in metallurgy in the Engineering School of Harvard University will be conducted hereafter exclusively as post-graduate work. It will be open to graduates of universities, colleges, and technical schools of recognized standing, who have the necessary knowledge of mathematics, chemistry, and physics. A knowledge of mineralogy is also desirable.

A one-year program is offered in ferrous metallurgy, including courses in physical chemistry, general metallurgy, principles of metallography, metallography of iron and steel, metallurgy of iron and steel, physics of metals and alloys. About one-fourth of the year's work will be devoted to training in research. A parallel one-year program in non-ferrous metallurgy is offered, including courses in non-ferrous metallurgy and metallography. Either of these one-year programs taken alone leads to the degree of master of science in metallurgy.

A two-year program combining both ferrous and non-ferrous metallurgy and leading to the degree of metallurgical engineer is also offered. This program consists of all the formal courses of both of the one-year programs, which make up about two-thirds of the work of the two years; the remainder is to be devoted to research.

The scientific training in physics, chemistry, and mathematics necessary to take up the professional study of metallurgy can usually be had in the colleges or technical schools. It is believed that suitably qualified college graduates may profitably proceed directly with their metallurgical studies, and that they should not be required to go through the usual four-year program, consisting for the most part of subjects, valuable in themselves, but which are rarely if ever pertinent to the work of the modern metallurgist. The students of metallurgy ordinarily aim to qualify themselves to take charge of metallurgical operations or to

conduct metallurgical research, or perhaps to teach the subject.

Prof. Albert Sauveur believes the departure from the custom of prescribing some 16 to 20 courses, many of them irrelevant to the subject, for those wishing to qualify themselves for the metallurgical profession marks a forward step which will be broadly welcomed.

Malleable Casting Production Off Slightly in June

WASHINGTON, July 28.—Based on reports from 143 plants, production of malleable castings in June totaled 58,881 net tons, representing operations of 51.5 per cent of the monthly capacity of 114,284 tons. Shipments amounted to 58,473 tons, while orders booked were 47,303 tons. Of the reporting plants five were idle. The June showing was only slightly less favorable than that of May when 138 out of 143 plants produced 61,003 tons, at a rate of 53.9 per cent of the monthly capacity of 113,265 tons. May shipments amounted to 61,420 tons, while orders booked were 50,594 tons.

For 130 identical plants, of which two were idle, the report made to the Bureau of the Census shows that June operations amounted to 51.6 per cent of the monthly capacity, as against May production at a rate of 54.3 per cent of the capacity.

Youngstown Sheet & Tube Co., Youngstown, Ohio, has bought two 1000-kw. motor generator sets with automatic control and three 6667-kva. transformers with outside switch for its East Youngstown works and one 1800-hp. and two 1000-hp. motors for the new tin mills at Indiana Harbor. The General Electric Co., the Westinghouse Electric & Mfg. Co. and the Allis-Chalmers Mfg. Co. shared the business.

Price of Coal Now Lowest in Eight Years

But Small Reserve in Stock Indicates Probable Up-
turn; High Coke Output Forces Prices Down Again

BY DR. LEWIS B. HANEY

DIRECTOR, NEW YORK UNIVERSITY BUREAU OF BUSINESS RESEARCH

THE average price of bituminous coal for June was the lowest since 1916—\$1.95. It is already clear that the average spot price for the current month, July, will be even a little lower. But in view of the unusual situation as regards stocks in reserve, an advance in price during August seems likely.

In no field has the improvement of transportation facilities been more clearly reflected in postponed buying than in soft coal. Industrial stocks last month amounted to but 41 days' supply. Consumers depend upon the railroads for prompt handling of fuel shipments and apparently no great need to cover requirements for a long period is felt.

Only faint indications of improved demand have yet appeared but the growing certainty of increased industrial activity this fall and winter is causing a slightly firmer tone to the market.

As shown in Fig. 1 the production of bituminous coal was little changed in June. The estimated output in that month was somewhat over 37,000,000 tons, against 35,880,000 in May. The increase, however, was just about the usual seasonal variation, and accordingly the adjusted index shown in the graph remained practically unchanged at 112.3 against 112.5 for May. Bituminous coal production is running a little over 8½ million tons per week, or about 1 million greater than a year ago. It has increased recently.

In June the average daily consumption of bituminous coal by industries was 10,000 tons under May. The June total was 2,000,000 tons less than in 1924.

The stocks of bituminous coal held by industries as

of July 1 showed little change from the recent low levels, although the figure was 115,000 tons over that for the preceding month. Since the stocks are so small, however, even this small increase may well indicate that the margin of safety has been extended.

Coke Prices Still Sag

COKE prices and production both continued their declines in June.

The average spot price of furnace coke in June was \$2.77 against \$3 in May. The June index was only 80 per cent of the 1921 average. While the contract market for furnace coke is generally quoted at \$3, a recent contract for the second half of the year is reported at \$2.85.

The combined production of beehive and by-product coke is estimated at 3,753,000 tons in June. This compares with 3,898,000 tons in May. The June figure was 78 per cent greater than the average for 1921.

Stocks of by-product coke as of June 1 are reported by the Geological Survey at 694,000 tons, against 606,000 tons on March 1 and 1,114,000 tons on Sept. 1, 1924.

The conclusions to be drawn concerning the coke situation are as follows: While it is believed that coke prices are at the bottom, no strength in the coke market is expected until production is more definitely checked. It is significant that the June index of production shown in Fig. 2 is 178 per cent of the monthly average for 1921, while the price index is only 80 per cent of the 1921 average.

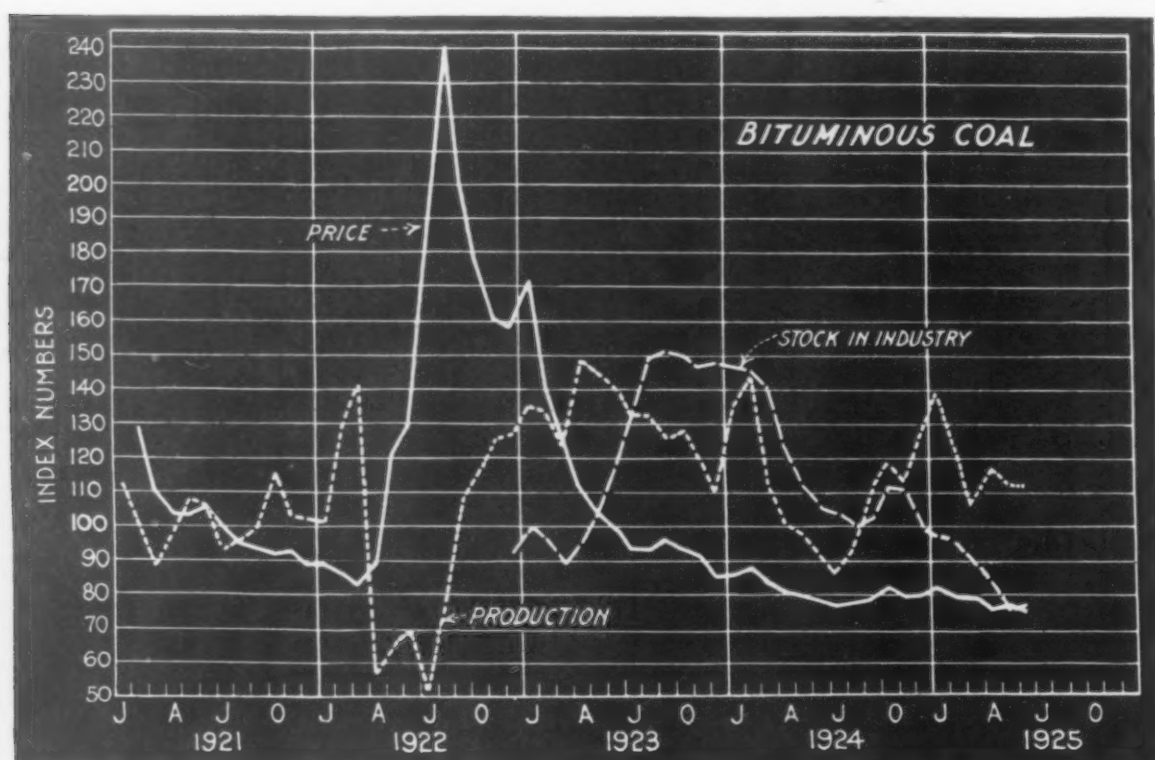


Fig. 1—Industrial Stocks of Coal Are Lowest in Three Years, Price Change Likely

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City gas successfully used for wire mill fuel.—Found to be cheaper than electrically operated furnaces and a higher output is maintained.—Page 275.

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Good construction work and good material penalized by low stresses.—Committee report takes into consideration lack of competent supervision.—Page 298.

Many German plants shut down.—Threatened coal strike, dull demand and weak prices force many Continental plants to close.—Page 285.

Bolts made cheaper on automatic cold-heading machines.—Cold nut punching machines using flat wire as stock also an improvement.—Page 289.

Canadian iron output drops 27 per cent in June.—Steel ingot production drops 37 per cent from May levels. First half also below 1924.—Page 300.

Re-melting iron used for enameled plate reduces blisters.—Dry process of enameling also found to cut down number of blisters.—Page 274.

Special roller cars reduce mold handling costs.—Cars can be easily shifted to pouring and shake-out positions at great saving of labor.—Page 272.

Montana and Washington produce more manganese ore.—Total production from United States mines increased 79 per cent in one year.—Page 286.

American investments abroad infer increased imports.—Large sums owing us can only be paid by importing more goods, or money (which seems unlikely).—Page 297.

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The Iron Age and Its Readers

THE foreign mailing list of THE IRON AGE carries many complicated "stencils," but none that occupies larger space than the following:

People's Commissariat for Means of Communication
N. K. P. S. Zuechel, Kommune No. 2, Moscow Ul,
Union Socialistic Soviet Republics

In this connection an extract from a recent Paris cable to the *Chicago Daily News* is interesting:

"Miss Fineman of Chicago brought back first hand news of Russia's new Red Queen, who is prominent in Soviet affairs. The woman who wants to be Red Queen is Anne Kaneneva, sister of Leon Trotsky and wife of Kaneneva. She superintends laboratories, schools, propaganda work and libraries. In the latter she is permitting among American periodicals only the *Nation*, *American Mercury*, *Harvard Law Review*, THE IRON AGE, *Wall Street Journal* and a few socialistic papers."

Soviet Russia, whatever it has done in the repression of individual initiative, is not failing to inform itself of developments in the iron, steel and metal working industries. At present 74 copies of THE IRON AGE are going each week to the leading cities of Russia.

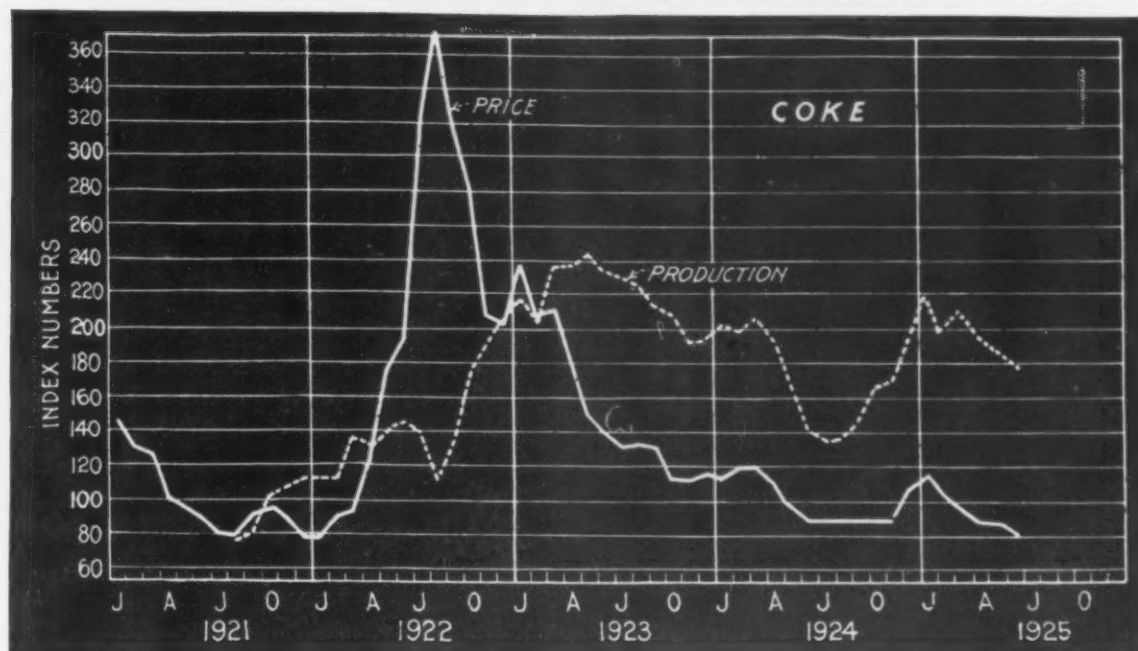


Fig. 2—Coke Production Still Too Large to Permit Any Strengthening of Prices

Supplies of furnace coke on track at Connellsville are reported to have been moved and trade news suggests that the spot market for this product will show greater firmness from now on. Foundry coke is dull.

Building Costs Stable

The general trend of building costs is gradually downward. The decline has been very gradual, but Fig. 3 shows that it has been going on in a general way since the middle of 1923. Building materials have not shared in the recent upturn in commodity prices.

During the last two months building costs have remained practically steady.

In June the cost of constructing a frame house was slightly lower than in May, while the index of the cost of cement factory buildings remained unchanged.

The slight evidence of the downward trend in building costs is emphasized by the wholesale prices of building materials. The Bureau of Labor Statistics' index of building material prices decreased 1.7 per cent in June.

The following table sums up the situation (pre-war prices = 100):

Month	Cost of frame house	Cost of cement factory building	Building materials
June 1924	203	199	173
May 1925	198	194	174
June 1925	197	194	171

Insofar as materials are concerned, there appears to be no reason for postponing action on any moderate building program. This conclusion is confirmed by existing money rates.

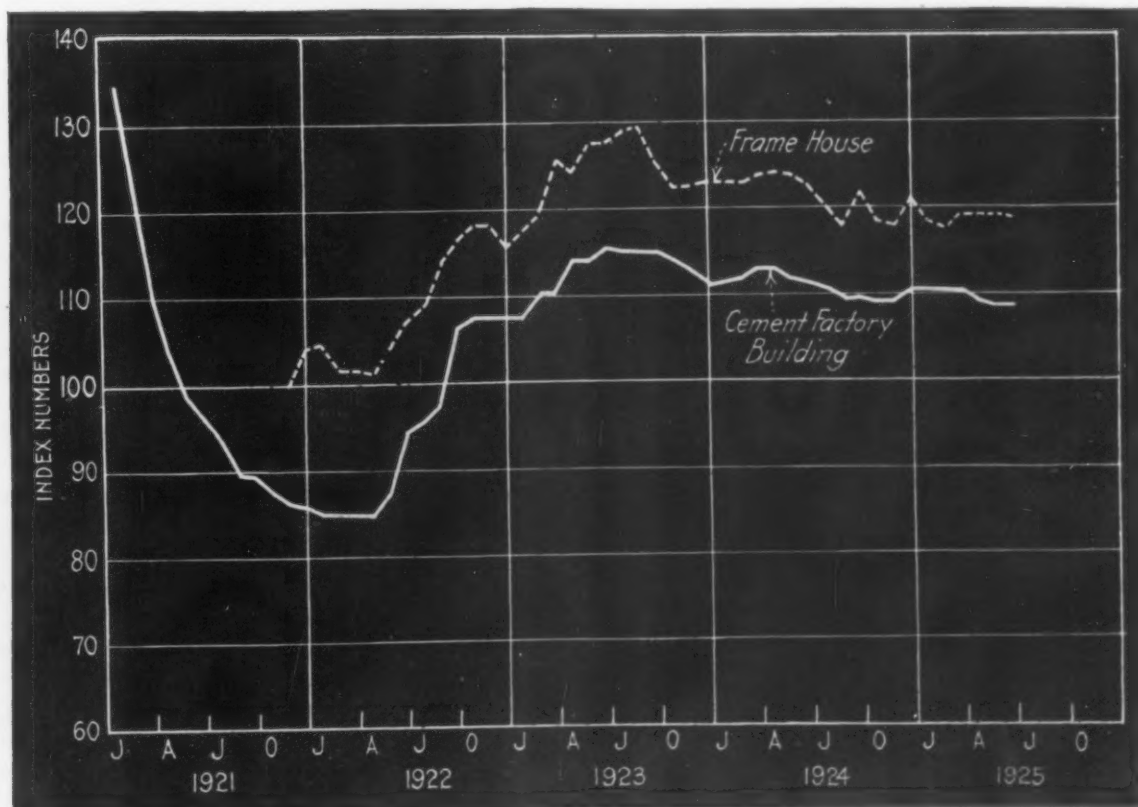


Fig. 3—The Cost of Building Has Been Slowly Declining Since Middle of 1924

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Metals as Business Gages

IT was an old hypothesis that the production, or the consumption, of pig iron was the best possible index of the probable requirement for copper; and that copper producers might correctly make their plans accordingly. Just now iron and steel producers look enviously at the large consumption of copper and the other non-ferrous metals and hope that this indicates what eventually will materialize for themselves. It easily may so happen. However, the idea is merely the opposite of the ancient idea of the pig iron index. In a broader way the same conception appears in the hypothesis of Colonel Ayres that blast furnace activity is the soundest index of general industrial activity.

There is no doubt much truth in all these ideas, just as there is in old-time adages in respect to the weather, such as those about mackerel skies, mares' tails, etc. They expressed a correlation between certain observations and subsequent events.

In the light of modern economic knowledge we are able to make more scientific analyses. These do not lead us to condemn the old hypotheses, but rather to qualify them. Given a population, it will require fuel, clothing, housing and all the commodities entering into those essentials in about the same proportion, year by year. There will be required per person about the same number of pounds of fibers, foodstuffs, fuels, metals, etc., at one time as another, with a gradually increasing tendency as the welfare of the people, their ability to live better, improves. Consequently the selection of any great commodity of general use, that is not subject to the competition of substitutes, may serve as a good industrial barometer. One observer may select pig iron, another sulphuric acid—the basis of the whole chemical industry—and another may select copper, and all of them would be making intelligent selections.

Nobody would select cotton, for the relative use of cotton, wool, flax and silk may vary extensively within a short period and remain permanently altered. Nor would anybody select coal, for it is well known that industrial activity has increased while the consumption of coal per person has decreased, the reason being the substitution of petroleum and water falls.

Even in respect to the more stable and non-

substitutionable commodities, however, we must make allowances. In given periods of industrial activity they may be required in quite different proportions. This may reflect a fundamental change in habits or methods; or it may reflect only a temporary unbalance in requirement. An illustration of the former is the great use of copper 50 years ago for sheathing wooden ships. With the introduction of steel ships less copper was required and more iron, and the correlation between the two metals was altered greatly. The outlook for copper was gloomy until the dawn of the electrical age created a new correlation.

At the present time, about five-eighths of the consumption of steel is for buildings and bridges; oil, gas and water tanks and pipe lines; metal containers (cans); agricultural equipment; and for the railroads (largely for rails). Some of these uses involve the connected use of copper, lead and zinc; some, as bridges or pipe lines, require scarcely any of those metals. On the whole these heads of steel consumption, representing five-eighths of the total, coordinate with relatively little copper and lead.

On the other hand, upward of 50 per cent of the consumption of copper is for electrical purposes, which coordinates with steel in generators and motors, line supports, etc., but requires no such proportional consumption of steel as of copper itself. The closest coordination is perhaps in the automobile industry, which accounts for about 12.5 per cent of the copper consumption and about 10 per cent of the steel consumption.

So it is with lead. Two of the large uses for that metal, viz., for cable covering and for pigment, occur to a certain extent without an accompanying use of steel. There might be an extensive repainting of wooden houses without any coordinated demand for steel whatsoever.

This explains why during a given period, perhaps three months, perhaps six months, perhaps even longer, there may be a large consumption of copper and other commodities and a brisk demand for them, and at the same time a sluggishness in iron and steel, or vice versa. Conjecturally, something like this may have happened during the first half of this year. In the longer run, however, there will be a tendency toward equalization.

The development of a new town, calling for pipe

lines of iron and steel which may have no copper fittings, nevertheless implies telephone and light and power lines and the requirement of copper and lead for those purposes. The entire direct use of copper for building in the United States is relatively small, being scarcely more than 5 per cent of the total copper consumption, but new buildings mean more electrical apparatus, transmission lines, etc., and the broad correlation is far more important and significant than the narrow one.

There is, therefore, without any doubt, truth in the old barometrical hypothesis, just as there is in the old weather signs, and in the long run we may expect the indicia of consumption of essential, non-substitutionable commodities to move in substantially the same way. Examination of the graphs of copper, lead and zinc consumption in late years, of which there are better distribution statistics than of almost anything else, shows a striking similarity of lines, although the direct correlation among those metals is as irregular as it is between any of them and steel. But owing to that very irregularity conditions during short periods may be quite out of joint.

Changing Demand for Terne Plate

IN the last six months of 1891, when the tin plate and terne plate industry in the United States may be said to have had its beginning, the output of tin plate was 368,400 pounds as against 1,868,343 pounds of terne plate. In the following year the terne plate tonnage was more than double that of tin plate; but from that time on the tin plate production of the country rapidly outstripped terne plate, the most marked difference occurring in 1923, when tin plate production amounted to 3,168,263,546 pounds as against 207,106,248 pounds of terne plate.

Terne plate was once the leading material for roofing purposes. It still retains its advantages from the standpoint of quality roofing, but it has lost its lead through the introduction of cheaper forms, especially so-called prepared roofing. Besides being cheaper, the latter is more easily laid by the farmer or small house owner, who in most instances can do the work himself and avoid the employment of tanners and roofers whose wages have increased in proportion to those of other skilled mechanics.

The annual production figures of the American Iron and Steel Institute show that terne plate output has declined steadily in recent years. The peak was in 1916 at 214,176,952 pounds. During the war and later up to 1923 no year's production of terne plate equaled that of 1916. Production in 1923 and 1924 showed a gain, however, and much of this was due to the increasing use of long terne plate for the manufacture of gasoline tanks for automobiles.

On the introduction of terne plate for gasoline tanks there was widespread comment, as it marked a complete change from the copper and galvanized sheets previously employed for that purpose. Its value in that particular is now so generally recognized that it has become standardized as the most suitable material. Galvanized sheets were found un-

suitable owing to the flaking which frequently occurred, small particles of the zinc finding their way into the tube leading to the carburetor or vacuum tank. Long terne plate does not have this fault and it has the additional advantages of soldering well and retaining enamel.

High grade roofing ternes are still being produced, but the call for them is so much less than formerly that the incorrect impression has gone abroad that they are no longer being made. Aside from roofing and automobile gasoline tanks, the use for terne plate is small, but it has been found desirable in certain difficult forming operations by reason of the lubricating effect of the coating. A conspicuous example is in conductor pipe elbows, which are subject to severe crimping operations. These elbows are frequently formed from terne plate and then galvanized.

Steel Exports Smaller, Imports Larger

A REVERSAL in the trend of our foreign trade in iron and steel is indicated by the figures for the fiscal year ended June 30 as published on other pages. Exports have declined and imports have as sharply increased.

Total imports were over 48 per cent in excess of those of the previous year, or 749,390 tons against 505,380 tons. While increased receipts of pig iron have been a large factor, expanding imports of rolled steel have been more significant. For the year these imports have been nearly 75 per cent in excess of those for the previous year, or 215,050 tons against 123,199 tons. Structural shapes increased from 25,000 tons to 67,000 tons. The increase in pig iron and ferroalloys has been about 54 per cent—from 261,000 tons to 402,000 tons.

The decline in our export trade which has been in evidence for the past year or two is emphasized. Total shipments abroad at 1,647,000 tons are about 18 per cent under those for the fiscal year 1924, with sharp declines registered in scrap, pig iron and rolled steel, the last named falling off more than 17 per cent.

If the tendencies shown in the past year are maintained to the end of the calendar year, a high record for imports in recent years and the smallest exports since 1921 will be the history of our foreign trade for 1925.

Imports and Foreign Investments

THE rank and file of the American people hold political views and vote according to them. The strength of these views is not in keeping with the amount of up-to-date information, for the views change slowly and circumstances change with relative rapidity. Particularly great have been the changes brought about by the war.

The United States finds itself in the position of having loaned large sums of money abroad during the war, and additional large sums since the war, and of being likely to loan much in future. Both the principal and the interest require settlement in tangible ways. The principal requires exports of merchandise, gold or silver, expenditures by American tourists abroad, etc., while the payment of in-

terest or repayment of principal involves our importing goods, gold or silver, the entertaining of foreign tourists, etc.

All who have studied the matter recognize that in the long run we shall have to accept more goods from abroad. There is the theoretical alternative of adding the interest to the principal in our loans outside the country, which would be only a make-shift, as eventually it would pile up such needs for a settlement that the settlement could not be made.

Conditions have changed greatly from those existing when the majority of political views now held were originally formed. The idea that tariff for revenue and tariff for protection are diametrically opposite things has not disappeared entirely from the minds of many voters. That there is a clear cut distinction between "luxuries" and "necessities" when it comes to drawing up a tariff is a common view, yet the individual who holds it could hardly agree with his next door neighbor as to which is which when it comes to the articles one or the other buys with his income. Then there is the notion that what are "raw materials" and what are not can be decided when one is writing a tariff bill, though at every tariff hearing one group of witnesses calls a given commodity a raw material and another group calls it a finished product.

Also there has been plentiful argument in connection with the tariff, based on the assumption that the people of the United States are divided into two great classes—on the one hand consumers, and over against them the producers. Moreover, it was once common to speak of "tariff barons" and of industrial capital as the chief beneficiaries of protective duties. Today—and in no industry more notably than in steel—the return to the investor is held down by excess capacity and free competition, while tariff operates mainly in the interest of the labor monopoly created by the embargo against foreign workers.

We certainly intend to, and probably will, export much more merchandise in future than we have in the past, and for this also we shall have to accept additional imports. On the spur of the moment one might say that we shall have to change our policy. That does not follow. Our concrete applications have by no means always been in harmony with our adopted and declared policy. The notions of the average voter have been still farther from a rational application of the policy the voter has professed to hold.

In other words, there is a great deal of brush to be cleared away from the popular conceptions of this matter before we can adopt as a nation the course of actual procedure which all economic doctrine is now dictating we must follow in order to do business profitably, to secure the individual comforts that are available, and to prosper generally.

FAR-OFF Hawaii has made an unusual application of the heat treatment of steel. It is found that the annealing of sugar mill roller shafts, after they have been long in service renews their usefulness. As described in THE IRON AGE, July 16, an electric furnace is employed for heat treating these shafts, relieving strains set up in their long service. In one case a shaft which had been in use about four years was made fit for a like career in

a new mill. Rarely do we hear of the heat treatment of material that apparently has passed beyond its useful life. But in places far removed from sources of supply this method may often be profitable. In fact some users of steel nearer home might learn from the experience of the Hawaiian sugar mill.

Steel in the Building Code

ALLOWABLE working stresses for use in designing buildings have been reported on by a committee which was brought into being by the Department of Commerce. The committee represents one of those extra-government creations of the department intended to help industry. The committee's tentative draft of building code provisions does not appear to meet with approval. While no great flood of adverse criticism has yet developed, advocacy of the report seems lacking.

The personnel of the committee would appeal to the layman as a group of engineers calculated to speak with authority on the questions involved. There is no doubt about the desirability of bringing about rational and uniform requirements in the building codes of American cities. Undoubtedly, care was exercised by the department to secure the help of engineers who would be without commercial bias. Their report gives evidence of being a compilation of their several individual expert viewpoints, so that the whole is not a monolith, but a stratification. In other words the authority on one phase of building construction apparently contributed his part, the second one added his, and thus the report in any one particular becomes the view of one man.

Also the report, which was briefly reviewed in these columns July 9, appears to be highly conservative, to say the least. The allowable stresses (16,000 lb. per sq. in., for steel, rather than 18,000 or 20,000 which are generally accepted) are admittedly low because of a contention that a very large percentage of steel construction work is done without competent supervision. Under this condition, naturally, good construction work and good material are penalized and no one can take advantage of full knowledge of good design. Whether there is the same concern regarding timber and concrete work is not clear.

It follows that commercial interest will undoubtedly make itself felt and, the report being tentative, one can hope that the final result will be acceptable as a compromise of extremes. Else there will be nothing for the engineers of the country to get behind and do their bit toward getting municipalities to revise building codes. Instead, the situation will be regarded by the uninformed as a quarrel among engineers, with an unanswered aspersion on dependable qualities of building material.

Our Half Yearly Index

THE index of THE IRON AGE for the past half year, January to June inclusive, is now ready for distribution. It will be forwarded to those who have entered their names as desiring it. Others who may have use for copies will be furnished them by our circulation department upon request.

EXPORT MARKET QUIET

Rise in Sheets Checks Japanese Buying—Russia Wants Credit on Pipe

NEW YORK, July 28.—The recent activity of Japanese merchants and others in purchasing black sheets seems to be temporarily halted by advance in price by American mills. Quotations on light gage black sheets today are understood to range between \$84 and \$86 per ton, c.i.f. Japan. The South Manchuria Railway Co. recently awarded the 58,660 flat bottom tie plates for 100 lb. rails, for which it has been in the market for some time, the business being taken by the Mitsubishi Shoji Kaisha, New York.

Inquiry from China continues in fair volume, but largely for second hand material, wire shorts and tin plate waste as well as tin plate scrap. Wire shorts are unchanged at \$44 to \$46 per ton, c.i.f. China, the

offering prices of Chinese buyers. Occasionally some business is transacted at the higher figure. Offerings on second-hand plates and plate cuttings range from \$26 to as high as \$30 per ton, depending upon the kind and condition of the material under consideration.

The inquiry from China for 16,000 tons of relaying rails, about 85-lb. sections, is still current, but exporters here apparently do not entertain much hope that the business will be placed in the United States, as prices from European mills are expected to be on a level or less than the American quotations.

A large inquiry for line pipe for Russia was recently issued by the Amtorg Trading Corporation, New York, but it is not expected that the business will be placed here. The specifications call for two lots of oil country, lap-welded steel pipe, one of 7000 tons and the other of 9000 tons, all 10-in. As four to five years credit is asked on this purchase it is expected the business, if placed at all on this basis, will go to a European country.

STATISTICAL UNIFORMITY

Urged by Chamber of Commerce as Aid to Collateral Charting

WASHINGTON, July 21.—Since the decisions of the United States Supreme Court in the Maple Flooring and Cement cases have been construed as setting up a guide for trade associations in their work of collecting business and industrial statistics for the groups they represent, it is urged by the department of manufacture of the United States Chamber of Commerce that the proper use of business figures be increased.

In a bulletin just issued, this department offers its assistance to trade associations in the exchange of information for encouraging the collection of statistics: "In this situation the Supreme Court itself has granted relief. On June 1 it handed down its opinion in two cases brought by the Department of Justice against trade associations, holding that the statistical activities of these associations were lawful. Thus, these opinions serve to indicate for all trade associations that there is no violation of the federal anti-trust laws if they gather and distribute the essential business facts which the Supreme Court described.

"With the clearer understanding of this liberty under the law (which remains unchanged), there is no bar to the development and proper use of business statistics. This clearing of atmosphere should mark the passing of guessing as to the facts concerning our commodity production and distribution provided there is a willingness, at source, to supply the information. It is in the hands of each member of an industry to make possible complete and accurate figures for his line by his own contribution."

"It should be borne in mind," the bulletin goes on to say, "that the favorable rulings of the Court in the so-called 'Cement and Maple Flooring cases' were based on the facts adduced in each case, just as their previous rulings in the Hardwood and Linseed Oil cases were predicated on facts obtaining in these cases—the law remaining unchanged.

"In the renewing of statistical activities, it is timely to suggest simplification of methods and forms in order that the information which is found be obtained and presented as quickly and accurately as possible at the minimum of expense. Such uniformity will enable the transmission of information gathered in the form of charts or graphs much less cumbersome than great masses of figures. If uniformity of method is observed, it would greatly simplify the matter of charting a given line as well as including such other lines as may be of collateral interest or important in comparing the trends of the industry. One of the important essentials of statistics is that they shall be fresh as well as dependable. A very encouraging number of trade associations are at present engaged actively in gathering and distributing such information and many

others are familiar with the methods of doing so properly."

U. S. STEEL EARNINGS

Showing for the Second Quarter Better Than That for First Quarter

Earnings for the second quarter of 1925 of the United States Steel Corporation, made public Tuesday afternoon, July 28, were \$40,624,221, compared with \$39,882,992 for the first quarter and \$41,381,039 for the second quarter of 1924. The surplus of the quarter after paying the regular 1½ per cent preferred, the regular 1¼ per cent common and an extra ½ per cent common dividend, was \$6,688,792 compared with a \$6,005,079 surplus for the first quarter. The extra common dividend is the eighth consecutive declaration of the sort.

Earnings for three years and for the quarter just ended were as follows:

Quarters	1925	1924	1923	1922
First.....	\$39,882,992	\$50,075,445	\$34,780,069	\$19,339,985
Second....	40,624,221	41,381,039	47,858,181	27,286,945
Third.....		30,718,415	47,053,680	27,468,339
Fourth....		30,762,231	49,958,980	27,552,392

EARNINGS FOR SECOND QUARTER, 1925			
Earnings Before Charging Interest on the Subsidiary Companies' Bonds Outstanding	\$14,027,700	\$650,879	\$13,376,821
January, 1925....			
February, 1925....	14,452,104	648,651	13,803,453
March, 1925....	14,154,902	710,955	13,443,947
	\$42,634,706	\$2,010,485	
Total earnings after deducting all expenses incident to operations, also estimated taxes and interest on bonds of the subsidiary companies			\$40,624,221
Less, charges and allowances for depreciation, applied as follows, viz.:			
To depreciation and extraordinary replacement funds and sinking funds on bonds of subsidiary companies		\$11,362,150	
To sinking funds on U. S. Steel Corporation bonds		2,700,390	
			14,062,540
Net income			\$26,561,681
Deduct: Interest for the quarter on U. S. Steel Corporation bonds outstanding		\$4,456,863	
Premium on bonds redeemed.....		215,814	
			4,672,677
Balance			\$21,889,004
Dividends on stocks of the United States Steel Corporation, viz.:			
Regular—Preferred, 1½ per cent..		\$6,304,919	
Common, 1¼ per cent.....		6,353,781	
		\$12,658,700	
Extra—Common, ½ per cent.....		2,541,512	
			15,200,212
Surplus for the quarter.....			\$6,688,792

Pratt & Whitney Subsidiary to Manufacture Aeronautical Engines

Application has been made for the incorporation under the laws of the State of Delaware of a company to engage in the development and manufacture of aeronautical engines, to be known as the Pratt & Whitney Aircraft Co. The incorporation papers provide for the issuance of \$2,000,000 of preferred stock of \$100 par value, and 20,000 shares of no par value common stock. The new company will be owned jointly by the Pratt & Whitney Co., Hartford, Conn., manufacturer of machine tools, small tools and gages, and by other manufacturing interests.

The aircraft company will occupy the part of the manufacturing facilities of the Pratt & Whitney company which was formerly the Pope-Hartford Motor plant. Equipment is being installed and production will be started as soon as possible. Fred B. Rentschler is president of the new company; George J. Mead, vice-president, and E. L. Morgan, secretary and treasurer.

The engineering work will be directed by George J. Mead, vice-president, who has extensive experience in the development of aeronautical engines, both for military service and for commercial use. Mr. Mead's previous connections include the Simplex Automobile Co., as experimental engineer; the Wright-Martin Aircraft Corporation as experimental engineer through the period of the manufacture of the French-Hispano aeronautical engine, during the war; Army Air Service at McCook Field, Dayton, Ohio, as engineer in charge of power plants; and since 1920, the Wright Aeronautical Corporation as chief engineer.

Acquires Business of D. H. Stoll Company

The Peck, Stow & Wilcox Co., Southington, Conn., has acquired the patterns, machinery, good will and other rights of the D. H. Stoll Co., manufacturer of sheet metal machinery, Buffalo, N. Y.

The Stoll company was organized in 1904 by Daniel H. Stoll who has been president since the beginning. Many types of presses, including inclinable, horning and wiring, punch and riveting, arch, straight-sided, double crank, drawing and embossing presses, were built. The line of shears, also large, included power squaring, power rotary slitting and circle shears, and among other items were spinning lathes, grooving and open-end beading machines, slip roll formers and double seamers. The Peck, Stow & Wilcox Co. plans to move the machinery to its main plant at Southington, but for the present the machines will be manufactured and shipped from the Stoll company's Buffalo plant. The general sales office will be at Southington, Conn.

Lower Canadian Iron and Steel Output in June

The report issued by the Dominion Bureau of Statistics states that in June the production of pig iron in Canada amounted to 45,885 gross tons, or a decline of 27 per cent from the 63,204 tons produced in May. For the first half of 1925, the cumulative production totaled 290,892 tons, as compared with 427,105 tons for the corresponding period in 1924 and 435,000 tons for the first half of 1923. The output for the first half of this year was made up as follows: 252,470 tons basic; 21,746 tons foundry, and 16,676 tons of malleable iron. Of the total produced only 13 per cent was made for sale.

Pig iron prices moved to lower levels during June, No. 1 (2.25 to 2.75 per cent silicon) at Toronto being quoted at \$24.85; malleable, \$24.85; No. 2 (1.75 to 2.25 per cent silicon) \$24.35, as compared with the former price of \$25.60 for No. 1 and malleable, and \$25.10 for No. 2 pig iron. At Montreal No. 1 and malleable dropped from \$28, to \$27.25 in June, and No. 2 iron from \$27.50 to \$26.75.

Reflecting the lower output of pig iron, the production of steel ingots and castings fell to 63,140 tons or

37 per cent below the 100,250 tons reported for May. The decline was altogether in the production of basic open-hearth steel ingots intended for the further use of reporting firms. This grade dropped to 60,983 tons as compared with 98,613 tons reported for the previous month. For the first six months of the year the cumulative production was 423,697 tons, a slight drop from the 488,733 tons for the same period last year. Of this output for the first half of 1925, 413,891 tons were steel ingots and 9806 tons were steel castings. The cumulative production for the corresponding period of 1924 was 469,551 tons of steel ingots and 19,182 tons of steel castings, 4 per cent of which was for sale.

Youngstown Sheet & Tube Co. Earnings in First Half Exceed All of 1924

Net earnings of the Youngstown Sheet & Tube Co., Youngstown, for the second quarter were \$3,424,835, equivalent after preferred dividends to \$3.22 per share on the 987,606 shares of common stock. Net the first quarter available for common stock was equal to \$3.48 per common share, bringing total earnings the first six months to an amount equal to \$6.70 per share. This compares with \$5.18 for the corresponding 1924 period, and to \$6.68 for the entire 12 months of last year.

After dividends in the quarter just reported, the company added \$2,188,009 to surplus, bringing this item as of June 30 to \$30,064,746. These earnings were not made, however, at the expense of charges, which totaled \$2,268,936 for the quarter, against \$2,268,111 the first quarter. Depletion and depreciation charges for all of last year amounted to \$9,649,727. The statement shows net income for the quarter of \$6,954,168, before deducting charges.

Additions to property the past six months increased this item in the consolidated balance sheet from \$169,805,564, to \$172,806,580. Charges amounting to \$60,875,717 had increased the last six months to \$66,783,214. Funded debt June 30 was \$68,820,000, a reduction from \$69,331,000 on Dec. 31, 1924.

Gross assets of \$266,446,569 include current assets of \$79,534,254. Inventories of finished and semi-finished products, raw materials and supplies aggregate \$47,393,287.

Competition on the Pacific Coast

WASHINGTON, July 28.—Luther Becker, chief of the iron and steel division, Department of Commerce, returned to Washington last week from an extended trip to the Pacific Coast and Rocky Mountain States, where he went to learn at first hand of the progress made in those sections of the country by producers of iron and steel and also to investigate the situation regarding foreign and domestic trade on the Western coast.

European steel, comprising mainly reinforcing bars, structural shapes and rails, are being received along the Western coast in considerable volume in competition with Eastern mills, Mr. Becker said. Although the amount is not sufficient to be alarming, he pointed out, it is enough to interfere with the price structure. Mr. Becker reported that he found the Western iron and steel plants operating at 60 per cent or higher, and employing modern methods. The labor situation was declared to be particularly good.

The competition encountered by Western producers, Mr. Becker stated, is largely from Eastern mills but to a smaller degree from Europe. Mr. Becker commented on the fact that there is considerable steel building construction under way in the cities on the Western coast, largely office buildings, theaters and apartment houses.

"Maintaining Interest in Safety" is the subject of a pamphlet just issued by the National Safety Council which points out that to start an accident prevention campaign is one task but to maintain it in spirit requires enthusiastic effort. It is available free of charge upon application to the council's offices, 168 North Michigan Avenue, Chicago.

FABRICATED STEEL

Structural Awards Nearly 55,000 Tons and Pending Business Totals 43,000 Tons

In only one or two weeks of the year has the total of structural steel awards exceeded that of the past week. A large part of the work put under contract was in New York City or vicinity. Inquiries, as reported to THE IRON AGE, totaled more than 43,000 tons. There were several good-sized awards, including 6000 tons for an Erie Railroad pier on North River; 5000 tons for an apartment building in New York; 4000 tons for an office building in Brooklyn; 3500 tons for an apartment hotel in New York. Among the inquiries are several from 2000 to 5000 tons. Awards include:

Erie Railroad, pier on the New Jersey side on North River, 6000 tons, to American Bridge Co.
Public school No. 38, Rosedale, Long Island, 400 tons, to Lehigh Structural Steel Co.
Bricken Construction Co., office building at Court and Remsen Streets, Brooklyn, 4000 tons, to Hay Foundry & Iron Works.
Apartment building, 35-41 West Ninth Street, New York, 350 tons, to Hay Foundry & Iron Works.
Todd, Robertson & Todd, apartment building at Lexington Avenue and Forty-eighth Street, New York, 5000 tons, to McClintic-Marshall Co.
Bing & Bing, apartment building, Eighty-second Street and Central Park West, New York, 1900 tons, to Taylor-Fichter Steel Construction Co.
Delaware River bridge, Philadelphia to Camden, approaches, 400 tons, to McClintic-Marshall Co.
Women's College, New Brunswick, N. J., recitation building, 250 tons, to unnamed fabricator.
Wadsworth Building, Cedar and William Streets, New York, 1300 tons, to McClintic-Marshall Co.
Farmers' National Bank, Reading, Pa., 250 tons, to an unnamed fabricator.
Garage, Worcester, Mass., 800 tons, to Eastern Bridge & Structural Co.
Standard Oil Co. of New Jersey, oil tanks for Bayonne, N. J., 2700 tons, to Petroleum Iron Works.
Public Service of New Jersey, generator house at Harrison, N. J., 1100 tons, to Pittsburgh Bridge Co.
W. & J. Sloane & Co., addition to plant at Trenton, N. J., 200 tons, to American Bridge Co.
Apartment building, Riverside Drive and Eighty-first Street, New York, 2000 tons, to A. E. Norton, Inc.
Apartment building, 845 West End Avenue, New York, 1300 tons, to A. E. Norton, Inc.
Marcus Brown, two apartment buildings for erection in New York, 1500 tons, to A. E. Norton, Inc.
Apartment building, West End Avenue and Seventy-fourth Street, New York, 1400 tons, to Harris Structural Steel Co.
Apartment building, Broadway and Ninety-third Street, New York, 1000 tons, to Harris Structural Steel Co.
Apartment building, Madison Avenue and Eighty-sixth Street, New York, 1900 tons, to Harris Structural Steel Co.
Lanabel Construction Co., apartment hotel at Seventh Avenue and Fifty-fifth to Fifty-sixth Street, 3500 tons, to Harris Structural Steel Co.
E. L. Phillips Co., 30 Church Street, New York, transmission towers, 400 tons, to Lehigh Structural Steel Co.
John W. Ferguson Co., Paterson, N. J., hosiery mill at Washington, N. J., 110 tons, to Lehigh Structural Steel Co.
Manomet Mills, New Bedford, Mass., 470 tons, to American Bridge Co.
Garage, New Haven, Conn., 170 tons, to McClintic-Marshall Co.
Bridge, Holden Street, North Adams, Mass., 100 tons, to McClintic-Marshall Co.
St. Francis' College, Athol Springs, N. Y., 100 tons, to R. S. McMannus Steel Construction Corporation.
Louisville & Nashville Railroad, bridges, 1250 tons, to McClintic-Marshall Co.
Louisville, Hendersonville & St. Louis Railroad, bridge, 180 tons, to American Bridge Co.
Nivison-Weiskopf Co., Cincinnati, building at Reading, Ohio, 125 tons, to L. Schreiber & Sons Co.
Philip Carey Co., Cincinnati, building, 125 tons, to Oregon Bridge Co.
Highway bridge, Old Fort, Ohio, 300 tons, to American Bridge Co.
Highway bridge, Armstrong County, Pa., 400 tons, to American Bridge Co.
Additions to Paul Brown and Benoist buildings, St. Louis, 170 tons, to American Bridge Co.

One Hundredth Street bridge, Chicago, 1400 tons, to American Bridge Co.
Eighth Street bascule bridge, Manitowoc, Wis., 714 tons, to Manitowoc Shipbuilding Co.
Western Avenue pumping station, Chicago, 600 tons, to American Bridge Co.
Chicago, Milwaukee & St. Paul Railway, machine shop, St. Paul, Minn., 228 tons, to American Bridge Co.
Hesser & Soden, Morse Avenue garage, Chicago, 212 tons, to McClintic-Marshall Co.
Beloit Gas, Water & Electric Co. plant extension, Beloit, Wis., 161 tons, to McClintic-Marshall Co.
Kansas, Oklahoma & Gulf Railway bridge, Wapanucka, Okla., 159 tons, to Wisconsin Bridge Co.
Skakomish River bridge, Mason County, Wash., 134 tons, to Virginia Bridge & Iron Co.
Century Electric Co., alterations to factory, St. Louis, 121 tons, to Mississippi Valley Structural Steel Co.
Mercantile Trust Co. building, Berkeley, Cal., 850 tons, to Moore Dry Dock Co.
Great Western Power Co., transmission towers, Brighton to Merced, Cal., 3500 tons, to Pacific Coast Steel Co.
Y. M. C. A., San Pedro, Cal., 141 tons, to Baker Iron Works.
Apartment, Jackson and Laguna Streets, San Francisco, 125 tons, to Judson Mfg. Co.
Subway Terminal Building addition, Los Angeles, 500 tons, to Llewellyn Iron Works.
Horton sphere gas holder, Salt Lake City, Utah, 150 tons, to Chicago Bridge & Iron Works.
Highway bridge at Bellaire, Ohio, general contract placed with the Moss Iron Works; subcontract for 2200 tons of steel to Mount Vernon Bridge Co.
Lima Trust Co., Lima, Ohio, bank building, 1050 tons, to Massillon Bridge & Construction Co.

Structural Projects Pending

Inquiries for fabricated steel work include the following:

Philadelphia General Hospital, 2800 tons; new bids to be received July 31.
Apartment building, Madison Avenue and Seventy-ninth Street, New York, 600 tons.
Laundry, Little Falls, N. J., 350 tons.
F. G. Shattuck Co., 1420 Broadway, New York, 150 tons.
Apartment building, West Seventy-seventh Street, New York, 400 tons.
Childs Co., office and restaurant, 423 Seventh Avenue, New York, 700 tons.
Proctor & Gamble Co., factory building at Port Ivory, Staten Island, New York, a few hundred tons.
Bronx Municipal Hospital, Bronx, New York, 3000 tons.
Apartment building, Sixth Avenue at Fifty-fifth Street, New York, 1000 tons.
Apartment building, 61-65 East Fifty-fifth Street, New York, 500 tons.
Hotel, Coney Island, 2000 tons.
Charles Mayer, several apartment buildings in New York, totaling several thousand tons.
Apartment building, Central Park West and Sixty-first Street, New York, for Joseph E. Gilbert, 500 tons.
Military Park Office Building, Newark, N. J., 2000 tons.
Central Railroad of New Jersey, east approaches and overhead crossing at Elizabethport, N. J., on Newark Bay bridge, 4000 tons.
Power plant, Braunfels, Tex., 600 tons.
Grade crossing elimination, Camden, N. J., 200 tons.
Southern Railway, eight bridges, 1400 tons.
New York Central Railroad, depot at Youngstown, Ohio, 300 tons.
Painesville National Bank, Painesville, Ohio, 300 tons.
Hotel Lincoln, Akron, Ohio, 700 tons.
U. S. Engineers' Office, Louisville, Ohio river dam, 500 tons.
Lazarus Co., Columbus, Ohio, building, 200 tons.
Lake Shore Athletic Club, Chicago, 4000 tons, revived.
Bridge across Tennessee River, Albany, Ala., 700 tons.
City of Milwaukee, Cedar-Biddle Street bascule bridge, 500 tons, bids about Oct. 1.
Contract Water Co., Azusa, Cal., pipe line, 200 tons; bids closed.
Morton Salt Co., Newark, Cal., 400 tons.
Hartford Fire Insurance Co., San Francisco, 500 tons; Dinwiddie Construction Co., general contractor.
Crocker National Bank, addition, San Francisco, 1500 tons; Dinwiddie Construction Co., general contractor.
Hotel, West Seventh and Bixel Streets, Los Angeles, 5000 tons.
Bridge over Puyallup River at Tacoma, Wash., 2000 tons; bids called Aug. 18.
Pacific Mutual Bank, addition, Los Angeles, 500 tons; bids in.
Louisiana Railway & Navigation Co., bridge, 3000 tons.

Iron and Steel Markets

CLOSE TO 65 PER CENT

Operations Tend to Increase—Some Railroad Buying

Steel Corporation's Good Earnings—Large Structural and Pipe Line Buying

Betterment in the steel trade is again conservatively asserted by producers on the basis of an increase in the volume of orders, comparing the last week of July with the three preceding, and of an improved rate of production. Comparing July orders with those for June, however, reports from various important companies range from a 10 per cent increase to a 10 per cent decrease.

Steel output for the week probably ran close to 65 per cent. The Steel Corporation has had a second week at 70 per cent, while the average for independent companies is 60 to 65 per cent.

More favorable than its ingot production in the April-June period would indicate, the Steel Corporation's second quarter earnings of \$40,624,000 (\$740,000 more than for the first quarter) are due to the same cause that operated in the first half of 1924. Not a little semi-finished steel was stocked in the first three months, this year and last. This was turned into finished product in April, May and June, with only the cost of final rolling charged against that quarter's operations.

Consumers adhere to the policy of making railroad cars their warehouse, with the result that prices are steady rather than strong, and cases are few in which the business offered is so large as to bring out fresh price cuts.

With steel plant operations tending to increase, one independent blast furnace has been started in the Pittsburgh district and the adding of one or two Carnegie furnaces is under consideration. Meanwhile, so close a balance has been reached between coke production and demand that the anthracite situation keeps the market firm at \$2.90 for prompt shipment.

The activity of automobile plants, the high rate at which sheet and tin plate mills have been running, the good outlook for implement works, the large volume of live structural projects and the exceptional record of the half year in line pipe contracts continue to be the basis of favorable forecasts for August and September. A very large if not a record pack of fruits and vegetables is predicted by can manufacturers.

While railroad car buying is the main thing needed to give the market an impetus, fall buying of rails is likely soon to get under way. The Cotton Belt is expected to place 15,000 tons next week, with the Great Northern order for 25,000 tons following shortly. Early inquiry from the Northern Pacific is looked for also. The low prices now named on cars are counted on to bring early orders from the Texas & Pacific for 750 and from the

Central of Georgia for 1000. The Missouri, Kansas & Texas is getting figures on 1000.

Some of the automobile companies and parts manufacturers are inquiring for steel bars for the remainder of the year and are asking concessions on the score of tonnage and forward delivery.

Two good-sized Texas orders, announced this week, will make 1925 the best year the industry has seen in gas line pipe. The leading producer, having completed delivery of 200 miles of pipe for the Houston Oil Co. gas line, has closed with the same company another contract for 127 miles—nearly 20,000 tons. A Youngstown pipe mill has taken 150 miles of pipe for the Moody Gulf Gas Co.

Structural steel awards of the week totaled close to 55,000 tons, having been exceeded in only one or two weeks of this year. Inquiries are also large, aggregating 43,000 tons. A considerable part of the work awarded and pending is in the New York district.

Pig iron sales have increased, but not significantly, and prices appear to have been little affected by the backlogs many furnaces acquired in the June buying movement. In the Central West fourth quarter inquiry has increased and foundries with contracts reaching into 1926 are seeking to buy for first quarter delivery.

Old material prices still show an advancing tendency on a limited demand. While a percentage of steel works operation in the sixties does not argue for large scrap consumption, the fact is that heavy melting steel did not come out at the prices lately ruling.

Imports, both of pig iron and finished steel, are increasing. About 40,000 tons of pig iron and ferroalloys came in in June, against 30,000 tons in May. For the fiscal year ended June 30 the total of imported finished steel was 215,000 tons, compared with 123,000 tons in the preceding year. Structural shapes are coming in at an increasing rate—11,350 tons in June against 7400 tons in May.

Pittsburgh

Notably Cheerful, Based on Expanding Bookings and Bright Outlook

PITTSBURGH, July 28.—The iron and steel trade here continues to take a cheerful view of the situation because the improvement in the volume of business, which appeared about two weeks ago, continues. While there is yet no positive evidence that consumers have definitely departed from a policy of using railroad cars for warehouses, the frequency of the orders and the urgency about deliveries suggests sustained consumption and low stocks in hands of consumers. Just now neither the size of the orders or the very prompt delivery demanded is a strain on the manufacturers to meet. That is why buyers feel safe in pursuing a hand-to-mouth purchasing policy and also why prices are not responding promptly to the increased volume of business.

Prices are steady, rather than strong, and part of the reason for the maintenance of the market on the heavy tonnage products is because there is no business

A Comparison of Prices

Advances Over the Previous Week in Heavy Type, Declines in Italics

At date, one week, one month, and one year previous

For Early Delivery

Pig Iron, Per Gross Ton:	July 28, 1925	July 21, 1925	June 30, 1925	July 29, 1924
No. 2X, Philadelphia...	\$21.26	\$21.26	\$21.26	\$21.26
No. 2, Valley Furnace...	18.50	18.50	18.50	19.00
No. 2, Southern, Cin'tit...	22.55	22.05	22.55	21.55
No. 2, Birmingham, Ala.†	18.00	18.00	19.00	17.50
No. 2 foundry, Chicago*	20.50	20.50	20.50	20.00
Basic, del'd, eastern Pa.	21.50	21.50	21.50	20.00
Basic, Valley furnace...	18.00	18.00	18.00	19.00
Valley Bessemer del'd P'gh.	20.76	20.76	20.76	21.76
Malleable, Chicago*	20.50	20.50	20.50	20.00
Malleable, Valley	18.50	18.50	18.50	19.00
Gray forge, Pittsburgh...	19.76	19.76	19.76	20.26
L. S. charcoal, Chicago...	29.04	29.04	29.04	29.04
Ferromanganese, furnace...	115.00	115.00	115.00	105.00

Rails, Billets, Etc., Per Gross Ton:	July 28, 1925	July 21, 1925	June 30, 1925	July 29, 1924
O.-h. rails, heavy, at mill...	\$43.00	\$43.00	\$43.00	\$43.00
Bess. billets, Pittsburgh...	35.00	35.00	35.00	38.00
O.-h. billets, Pittsburgh...	35.00	35.00	35.00	38.00
O.-h. sheet bars, P'gh.	35.00	35.00	35.00	38.00
Forging billets, base, P'gh.	40.00	40.00	40.00	43.00
O.-h. billets, Phila.	40.30	40.30	40.30	43.17
Wire rods, Pittsburgh...	45.00	45.00	45.00	48.00
	Cents	Cents	Cents	Cents
Skelp. gr. steel, P'gh, lb.	1.90	1.90	1.90	2.15
Light rails at mill	1.60	1.60	1.70	1.90

Finished Iron and Steel,

Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Iron bars, Philadelphia...	2.22	2.22	2.22	2.42
Iron bars, Chicago	<i>1.90</i>	1.95	2.00	2.20
Steel bars, Pittsburgh...	2.00	2.00	2.00	2.15
Steel bars, Chicago	2.10	2.10	2.10	2.15
Steel bars, New York	2.34	2.34	2.34	2.49
Tank plates, Pittsburgh...	1.90	1.90	1.90	2.00
Tank plates, Chicago	2.10	2.10	2.10	2.25
Tank plates, New York	2.14	2.14	2.14	2.14
Beams, Pittsburgh	2.00	2.00	2.00	2.00
Beams, Chicago	2.10	2.10	2.10	2.25
Beams, New York	2.24	2.24	2.24	2.34
Steel hoops, Pittsburgh...	2.40	2.40	2.40	2.60

*The average switching charge for delivery to foundries in the Chicago district is 61c. per ton.

†Silicon, 1.75 to 2.25. ‡Silicon, 2.25 to 2.75.

On export business there are frequent variations from the above prices. Also, in domestic business, there is at times a range of prices on various products, as shown in our market reports on other pages.

Sheets, Nails and Wire,	July 28, 1925	July 21, 1925	June 30, 1925	July 29, 1924
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Sheets, black, No. 28, P'gh.	3.15	3.15	3.10	3.40
Sheets, black, No. 28, Chicago dist. mill.	3.30	3.30	3.20	...
Sheets, galv., No. 28, P'gh.	4.20	4.20	4.15	4.50
Sheets, galv., No. 28, Chicago dist. mill.	4.30	4.30	4.25	...
Sheets, blue, 9 & 10, P'gh.	2.30	2.30	2.30	2.60
Sheets, blue, 9 & 10, Chicago dist. mill.	2.40	2.40	2.35	...
Wire nails, Pittsburgh...	2.65	2.65	2.65	2.85
Wire nails, Chicago dist. mill.	2.70	2.70	2.70	...
Plain wire, Pittsburgh	2.50	2.50	2.50	2.60
Plain wire, Chicago dist. mill.	2.55	2.55	2.55	...
Barbed wire, galv., P'gh.	3.35	3.35	3.35	3.55
Barbed wire, galv., Chicago dist. mill.	3.40	3.40	3.50	...
Tin plate, 100 lb. box, P'gh	\$5.50	\$5.50	\$5.50	\$5.50

Old Material, Per Gross Ton:

Carwheels, Chicago	\$17.50	\$17.00	\$17.00	\$16.50
Carwheels, Philadelphia	18.00	17.00	17.00	17.50
Heavy steel scrap, P'gh.	18.50	18.50	17.50	18.00
Heavy steel scrap, Phila.	16.00	15.50	15.50	15.50
Heavy steel scrap, Ch'go.	16.00	16.00	15.50	15.25
No. 1 cast, Pittsburgh	17.00	17.00	17.00	18.00
No. 1 cast, Philadelphia	18.00	17.50	17.50	17.00
No. 1 cast, Ch'go (net ton)	17.50	17.50	17.50	17.00
No. 1 RR. wrot. Phila.	17.50	17.50	18.50	18.00
No. 1 RR. wrot. Ch'go (net)	14.50	14.25	14.00	13.50

Coke, Connellsville,

Per Net Ton at Oven:

Furnace coke, prompt	\$2.90	\$2.90	\$2.75	\$3.00
Foundry coke, prompt	3.75	3.75	3.75	4.00

Metals,

Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Lake copper, New York	14.50	14.37½	13.87½	13.25
Electrolytic copper, refinery	14.12½	14.12½	13.50	12.87½
Zinc, St. Louis	7.30	7.25	7.00	6.07½
Zinc, New York	7.05	7.60	7.35	6.42½
Lead, St. Louis	8.20	8.00	7.75	7.35
Lead, New York	8.50	8.35	8.00	7.50
Tin (Strait), New York	58.37½	58.50	57.00	48.37½
Antimony (Asiatic), N. Y.	17.00	16.50	16.50	8.87½

THE IRON AGE Composite Prices

July 28, 1925, Finished Steel, 2.439c. Per Lb.

Based on prices of steel bars, beams, tank plates, plain wire, open-hearth rails, black pipe and black sheets. These products constitute 88 per cent of the United States output of finished steel.	One week ago,	2.439c.
	One month ago,	2.431c.
	One year ago,	2.524c.
	10-year pre-war average	1.689c.

July 28, 1925, Pig Iron, \$18.96 Per Gross Ton

Based on average of basic and foundry irons, the basic being Valley quotation, the foundry an average of Chicago, Philadelphia and Birmingham.	One week ago,	\$18.96
	One month ago,	19.13
	One year ago,	19.29
	10-year pre-war average,	15.72

High	Low
1923 2.824c., April 24 \$30.86, March 20	1925 2.424c., June 23 \$18.96, July 7
1924 2.789c., Jan. 15 \$22.88, Feb. 26	1924 2.460c., Oct. 14 \$19.21, Nov. 3
1925 2.560c., Jan. 6 \$22.50, Jan. 13	1923 2.446c., Jan. 2 \$20.77, Nov. 20

before the market of a size that might induce concessions.

There is disappointment that more railroad business has not developed, but quite offsetting this is the satisfaction derived from the fact that the demand from the automobile industry has not receded as much as it was expected to. Also the pipe market still shows marked activity, with at least two good sized line pipe orders included in the week's bookings. Container manufacturers now are so impressed with the prospects for the pack of fruits and vegetables this year that, besides trying to get the mills to anticipate tin plate shipments on contracts, they have been free buyers of

stock items. It is still believed that the year will produce a good deal of agricultural prosperity and that this will find reflection in the demand for farm tools and in turn a demand for steel from the tool manufacturers. An impressive feature of the structural steel market is the fact that so much of the pending business gives promise of being closed. The desire of investors is strong that the steel be up before winter, and if this is to be possible the orders must be in within the next few weeks.

Steel plant operations show a rising tendency and this and nearby districts now are producing ingots at slightly above rather than below 65 per cent of capac-

ity. The Jones & Laughlin Steel Corporation has put on one of its Aliquippa blast furnaces in the week, and now has seven of its 12 furnaces in production. There is some talk that the Carnegie Steel Co. will soon start up additional pig iron making capacity, but as yet no instructions have been issued to that end.

Somewhat larger sales of pig iron have served better to establish recent prices and the advance of \$1 a ton in heavy steel scrap a week ago having been sustained by further sales. The finished steel price structure is for the first time in several months getting some support from the primary materials. A nice balance in the supply of, and the demand for, furnace coke has resulted in a firm price situation, and the possibilities that there may be a suspension of the anthracite coal mines through inability to reach a settlement of the wage scale is not without some effect upon the price ideas of coke and soft coal producers on supplies for shipment later in the year.

Pig Iron.—Sales of iron in this market in the past week have reached a fairly respectable total as compared with the previous few weeks. Total sales, mostly of foundry iron, have probably exceeded 20,000 tons. One producer reports sales of foundry iron aggregating 15,000 tons, including two lots of 5000 tons each for shipment beginning Aug. 1, and running over the remainder of the year. The buyers were Pittsburgh melters. It is claimed that the full quotations were obtained. The week's business also includes 3000 tons of basic iron, 1000 tons being taken by a Sharon, Pa., consumer and 2000 tons by a Pittsburgh producer of special steels. This business has given some basis in sales to the recent quotation of \$18, Valley furnace, which recently has been a nominal figure because of lack of business. Small lots of Bessemer iron have changed hands at \$19, Valley furnace. There seems to be a slightly firmer tone to the market than recently was observed, but there is no thought that materially higher prices are immediately in prospect. Melters are taking out iron very well and there is no doubt that as there are only four out of 23 merchant furnaces active in this and nearby districts shipments are exceeding production. At the same time it is doubtful if the melt of iron in the district is as heavy as the shipments and the pig iron supply situation would not be helped by the resumption of any merchant capacity now idle. Most merchant producers are well sold against their stocks, but not against their probable production over the remainder of the year. The possibility of idle furnaces going into blast, however, is slight, since prices are low and costs with those now active are barely enough for them to break even at today's levels.

We quote Valley furnace, the freight rate for delivery to the Cleveland or Pittsburgh district being 1.76 per gross ton:

Basic	\$18.00
Bessemer	19.00
Gray forge	18.00
No. 2 foundry	18.50
No. 3 foundry	18.00
Malleable	18.50
Low phosphorus, copper free.....	\$27.75 to 28.00

Ferroalloys.—Business still is lagging in this district but prices are steady, because there are demands from other districts that are taking up production sufficiently to keep down selling pressure. Considerable activity is noted in ferromanganese in Chicago, no small part of it being in tonnages for delivery over the remainder of the year. Large consumers in this district, however, are well fortified against their requirements for the next 90 days and just now they are not interested. Only small lots for early delivery are being sold here. The price of \$115 Atlantic seaboard is finding no opposition either from buyers or from resale offerings. The regular market prices on spiegeleisen are subject to some shading on desirable business. Consumers of 50 per cent ferrosilicon are specifying steadily against contracts, but new business is very light. Prices are given on page 317.

Semi-Finished Steel.—Inquiry for sheet bars is reported to be better by several makers and having successfully resisted efforts by buyers to secure supplies at less than \$35, Pittsburgh or Youngstown, producers are encouraged to an even firmer stand by the signs

of awakening interest. There is still some talk of \$33.50 for billets and slabs, but it is the report of consumers here that they have not been able to uncover tonnages rolled to specification at less than \$35. It is believed that the lower price refers to yard stocks which will not fit all specifications. There seems to be no basis in sales for a price of less than \$40 base on forging quality billets. Wire rods are selling steadily at \$45, base, Pittsburgh and Cleveland. The Chicago differential over Pittsburgh and Cleveland was reduced to \$1 a ton when finished wire prices were placed at the same differential. Skelp is slow in open market activities and is readily obtainable at 1.90c. Prices are given on page 317.

Wire Products.—Recent betterment in business is maintained. There is no long range buying, but distributors and manufacturing consumers, by frequent purchases, are providing a volume of business that is satisfactory for this time of the year, a period that usually does not show real activity. Prices are well stabilized at recent levels. They are given on page 316.

Rails and Track Supplies.—Intimations are heard that the Pennsylvania Railroad will soon place the orders for its 1926 rail requirements. The demand for light rails is as slow as ever, and they are at the lowest prices that have ruled for several years. Spikes and other track accessories are not very active with local makers. Some shading of spikes prices is reported, but local producers disclaim any departure from \$2.80, base, per 100 lb. on large spikes and \$3 on the small ones. Prices are given on page 316.

Tubular Goods.—Pipe business still is of satisfactory proportions, particularly in line pipe and oil country goods. The National Tube Co., which recently completed the shipment of 200 miles of the large pipe for the gas line of the Houston Oil Co., Reagan County, Texas, has taken 127 miles of 12 $\frac{1}{2}$ -in., 16-in and 18-in. pipe to complete this line from Edna to Houston and from Goliad to the Refugio field. This order will amount to approximately 20,000 tons. A 150-mile line running from the Refugio field to Houston, embracing sizes from 6 $\frac{1}{2}$ -in. to 20-in., has been placed with a Youngstown mill by the Moody Gulf Gas Co. Standard Oil Co. subsidiaries operating in the Southwest are reported to be inquiring for line pipe. According to close observers, this year has been the best in history in pipe for gas lines and, as such pipe runs in large sizes, it is believed that a record tonnage of line pipe has been placed. There is still a strong demand for well goods and, while standard pipe could be selling better, it is doing almost as well as it usually does at this time of the year. Little is said of prices, but quotations have so long been maintained that they are beginning to be regarded as fixtures. Mechanical tubing holds up well in sales, thanks to the sustained activity of automobile manufacture. Boiler tubes are only fairly active and with a good many more sellers than buyers there is not the same price stability there is in pipe. Discounts are given on page 316.

Sheets.—The American Sheet & Tin Plate Co. still reports sheet orders and specifications to be on a rising scale, but the large June bookings by independent companies, as reported in the monthly report of the National Association of Sheet and Tin Plate Manufacturers, will hardly be duplicated this month, according to reliable observers. The independent companies have enjoyed good business in the past two weeks, but the fore part of the month was slow with them. In a general way, this branch of the industry is doing well in point of sales and as most makers are well supplied with business, there is no such competition as marked the second quarter and prices are firmer and better stabilized. As expressed by one manufacturer, there is now no more price shading than there is in the strongest of markets. Mills located in the Pittsburgh district or those quoting on a Pittsburgh base are generally quoting 3.15c., base, for black; 4.20c., base, for galvanized, and 2.30c., base, for blue annealed, and these are the ruling prices on ordinary tonnages. Most of the current business comes within that category, since the bulk of the business is for prompt delivery

and not a little of it carries rush tags. The trade is pleasantly surprised that the automobile manufacturers are maintaining production as well as they are and that they are taking so much steel. Prices are given on page 316.

Steel and Iron Bars.—There is a steady market and a steady demand for steel bars, although consumers are still buying and specifying in strict accordance with their known requirements. Pittsburgh district mills are having no trouble in getting 2c., base Pittsburgh, in this territory and can go some distance outside without being obliged to reduce prices in equalizing freights with competing districts. Iron bars are steady and the demand is fairly good. Prices are given on page 316.

Structural Material.—On business within the Pittsburgh area 2c., base Pittsburgh, still is the prevailing price, but as has been the case for 60 days or more, Pittsburgh mills cannot do that well in competition with mills East or West. Going east, 1.90c., Pittsburgh, is all that Pittsburgh mills can hope to get and in meeting Chicago district mill competition, the freight equalization often produces a Pittsburgh mill price of about 1.90c. Steel fabricators are cheerful about the immediate prospects, being impressed that the desire of investors for early deliveries means the closing of much pending tonnage in the next few weeks. In a number of cases involving large tonnages, the bids have disclosed total costs in excess of appropriations and have brought requests for revised bids, but there is no thought that this means postponement, as is usually true in such cases. Plain material prices are given on page 316.

Tin Plate.—The pressure for supplies on tin plate continues heavy and the indications now point so strongly to one of the largest, if, indeed, not an actual record pack of fruits and vegetables, that the mills are having trouble in turning out the tonnage as rapidly as it is desired. As intimated in these columns last week, the fear of not having supplies ample to meet the demand has led to a scramble for stock items and in the past week makers have made big inroads in such stocks, and at good prices because of the urgency of the demand. With business good in general line tin plate, makers have no cause for complaint, especially as the price softness of a few weeks ago has disappeared.

Cold-Finished Steel Bars and Shafting.—Recent improvement in demand is maintained. July and August specifications from the automobile parts makers are in and they are not materially smaller than those for June. Some specifications against September quotas are coming along and show up well by comparison with other recent months. Other consuming industries are fairly good buyers. In a general way, business offered is no tax upon capacity but productive capacity today is large by comparison with consumption and all makers have to be satisfied with less than they are capable of producing. On ordinary tonnages, 2.60c., base, Pittsburgh, is more firmly observed than was true a month or six weeks ago.

Hot-Rolled Flats.—The market still is well defined as firm at 2.20c., base, Pittsburgh, on material wider than 6 in. and 2.40c., base, on narrower stock. Deviations from those prices are rare and all makers have fairly good order books, particularly in steel for the automobile industry, which is maintaining a higher production than was expected. Prices are given on page 316.

Cold-Rolled Strips.—Having so recently advanced to 3.75c., base, consumers of this material are disposed to test the market before buying. So far as can be learned, little success attends the effort and a rather good business is being done at the full price.

Plates.—This district is not providing much plate business. A few small tonnages have moved into the oil producing sections of the northern part of the state, but a lack of railroad buying continues to be felt. Most of the tonnages offered the mills are of small lots, and those for delivery in the Pittsburgh area

usually carry a price of 1.90c., base, Pittsburgh. Pittsburgh mills, however, as has been the case for the past 60 days or more, are not able to get that price on business east or west in competition with outside mills. Prices are given on page 316.

Bolts, Nuts and Rivets.—Bolts and nuts still are selling in small quantities for early delivery, makers showing no disposition to induce more liberal buying by price concessions, while buyers believing no advances in prices are immediately likely are not disposed to anticipate requirements. The demand for rivets is steady, but there is no forward buying worthy of note. Prices and discounts are given on page 317.

Coke and Coal.—The furnace coke market here still is firm at \$2.90 per net ton at ovens on spot or prompt shipments, producers having curtailed production to the basis of contract requirements and no longer having any loaded cars that had to be moved. Spot foundry coke still is easy in price because the demand is not especially heavy and with furnace grade being used by a good many foundries there is some excess supply of standard 72-hr. fuel. The quotable range still is \$3.75 to \$4.25 per net ton at ovens, but the higher figure is exceptional. Coal supplies, even with only a limited amount of union coal coming on the market, are more than ample for the demand, and the prices still are soft so far as early deliveries are concerned. There is an idea that the wage scale conference between the anthracite mine owners and the miners' union will end without a definite settlement and that there will be a suspension of hard coal mine operations around Sept. 1, when the present agreement expires. Such an eventuality would mean demand for soft coal and for coke to replace hard coal and producers are inclined to discount that fact in their price ideas for deliveries later in the year. Prices are given on page 317.

Old Material.—The recent advance in heavy melting steel has been sustained by purchases by other steel companies. A down river company bought a round tonnage of heavy melting steel, compressed and bundled sheets, paying \$18.50, \$17.50 and \$16.50, respectively, for these grades. Another with exacting specifications paid \$19 for heavy melting grade and still another \$18.50 for a small tonnage. It is believed that close to 50,000 tons has been moved in these sales and supplies are so scant that it is doubtful if more tonnage could be placed below \$19. The general market is stiffened by the advance in heavy melting grade, while turnings have been helped upward by purchase and the strength of the outside markets. Foundry scrap is not moving and rolling grades are slow. The Norfolk & Western Railway is taking bids until July 30 on 3615 gross tons of scrap rail and 1300 tons of rerolling rails. Compressed sheets for August shipment offered by the Westinghouse Electric & Mfg. Co. sold at around \$16.50 f.o.b. East Pittsburgh.

We quote for delivery to consumers' mills in the Pittsburgh and other districts taking the Pittsburgh freight rate as follows:

Per Gross Ton	
Heavy melting steel	\$18.50 to \$19.00
No. 1 cast, cupola size	17.00 to 17.50
Rails for rolling, Newark and Cambridge, Ohio; Cumberland, Md.; Huntington, W. Va., and Franklin, Pa.	18.50 to 19.50
Compressed sheet steel	17.00 to 17.50
Bundled sheets, sides and ends ..	16.00 to 16.50
Railroad knuckles and couplers ..	20.50 to 21.00
Railroad coil and leaf springs ..	20.50 to 21.00
Low phosphorus blooms and billet ends	22.00 to 22.50
Low phosphorus plate and other material	21.00 to 21.50
Railroad malleable	18.00 to 18.50
Steel car axles	20.50 to 21.00
Cast iron wheels	17.00 to 17.50
Rolled steel wheels	20.50 to 21.00
Machine shop turnings	14.00 to 14.50
Short shoveling turnings	14.00 to 14.50
Sheet bar crops	18.50 to 19.00
Heavy steel axle turnings	16.00 to 16.50
Short mixed borings and turnings ..	13.00 to 13.50
Heavy breakable cast	16.00 to 16.50
Stove plate	13.50 to 14.00
Cast iron borings	14.00 to 14.50
No. 1 railroad wrought	15.00 to 15.50
No. 2 railroad wrought	18.50 to 19.00

Chicago

Iron and Steel Sluggish but Prices Give No Ground

CHICAGO, July 28.—The iron and steel market in this district remains sluggish and without definite trend. Prices of finished products, with the exception of bar iron, have given no further ground and in some instances, notably in the case of plates, shapes and mild steel bars, appear to be steadier. Fabricating awards for the week were heavier than usual, totaling more than 11,000 tons, and there has been encouraging betterment in bar business, specifications thus far in July being between 15 and 20 per cent ahead of the corresponding period in June. A leading mill rolling heavier products has experienced the best week in sales in two months. The improvement, however, has not been pronounced as evidenced by the fact that specifications still fall short of shipments. It is apparent that in view of quick deliveries from the mills expedited by unusually efficient railroad service, consumers are not yet ready to abandon their policy of hand-to-mouth buying.

With users' stock generally at a low level, a high rate of consumption is indicated by the fact that current replenishments warrant 70 to 75 per cent output at steel works. The only thing lacking to give the market real impetus is railroad buying. Fall buying of rails, it is now believed, will soon get under way. The Cotton Belt is expected to close for 15,000 tons next week and the Great Northern will probably follow shortly with orders for 25,000 tons, while an early inquiry from the Northern Pacific is looked for. The extent of railroad car purchases during the last half of the year is still the most uncertain factor in market calculations. Aside from the assumption that heavier buying should develop because orders were light during the first six months of the year, there is little upon which expectations can be based. If the Van Sweringen mergers are finally approved by the Interstate Commerce Commission, it is said that orders for 25,000 cars will be released. Otherwise activity is confined to relatively small inquiries. The Texas & Pacific may close this week for 750 cars and the Central of Georgia for 1000, while the Missouri-Kansas-Texas has asked for figures on 1000.

So far as can be ascertained steel producers in this district do not contemplate any changes in labor rates. Ingot output remains at about 75 per cent of capacity and 23 steel works blast furnaces continue in operation out of a total of 35 in this vicinity.

Ferroalloys.—Additional sales of ferromanganese aggregating 400 tons have brought the full market price. Spiegeleisen is quiet.

We quote 80 per cent ferromanganese, \$122.56, delivered; 50 per cent ferrosilicon for 1925 delivery, \$85, delivered; spiegeleisen, 18 to 22 per cent, \$38.58 to \$40.04, delivered.

Pig Iron.—The Thomas Furnace, Milwaukee, has been lighted and will get into production in a day or two. This increases the number of active merchant stacks in the Chicago, Milwaukee and Duluth districts to seven. The market remains quiet with spot buying somewhat heavier. Shipments are in good volume and will exceed those for June. A northern Illinois melter is inquiring for 1000 tons of foundry iron. Another Illinois user has closed for 300 tons of Southern foundry for all rail shipment on the basis of \$18.50, base Birmingham. Tennessee foundry is still available at \$17.50, base Birmingham, but Alabama stacks are holding to the higher quotation. A southern Wisconsin melter has closed for 400 tons of Northern foundry for delivery over the rest of the year. A carlot inquiry for 14 to 16 per cent ferrosilicon is before the trade. That steel works blast furnaces may have surplus iron to offer before the close of the summer is a possibility which the trade has not yet lost sight of.

A Wisconsin steel works stack, however, will probably be blown out for relining by Aug. 8.

Quotations on Northern foundry, high phosphorus, malleable and basic iron are f.o.b. local furnaces and do not include an average switching charge of 61c. per ton. Other prices are for iron delivered at consumers' yards.

Northern No. 2 foundry, sil. 1.75 to 2.25	\$20.50
Northern No. 1 foundry, sil. 2.25 to 2.75	21.00
Malleable, not over 2.25 sil.	20.50
High phosphorus	20.50
Lake Superior charcoal, averaging sil. 1.50, delivered at Chicago	29.04
Southern No. 2 (all rail)	23.51
Southern No. 2 (barge and rail)	22.68
Low phos., sil. 1 to 2 per cent, copper free	31.30
Silvery, sil. 8 per cent	\$29.79 to 30.79
Electric ferrosilicon, 14 to 16 per cent	44.00 to 44.79

Plates.—The Missouri-Kansas-Texas has revived an inquiry for 1000 box cars. The Central of Georgia, a subsidiary of the Illinois Central, which has been in the market for several weeks for 1000 box cars, is expected to buy more cars than its inquiry calls for, if the car builders' figures are attractive. The Fruit Growers' Express has placed 400 underframes with the Western Steel Car & Foundry Co. A local mill has booked 3000 tons of plates for oil storage tank work. The prevailing quotation on tank plates is 2.10c., Chicago.

The mill quotation is 2.10c., Chicago. Jobbers quote 3.10c. for plate out of stock.

Bars.—A leading maker of soft steel bars reports the best week in several months from the standpoint of sales, specifications and inquiries. Bar specifications thus far in July have shown a gain of nearly 20 per cent over the corresponding period in June. A particularly favorable development is the fact that some of the largest buyers have come into the market for their requirements. Implement makers continue to take considerable material, and country jobbers are said to be preparing to stock up in anticipation of a good fall business. Mild steel bars are generally held at 2.10c., Chicago. Bar iron has again weakened and is now available at 1.90c. to 2c., Chicago, although the volume of new business has shown slight improvement. The situation in rail steel bars is unchanged.

Mill prices are: Mild steel bars, 2.10c.; common bar iron, 1.90c. to 2c., Chicago; rail steel, 2c., Chicago district mill.

Jobbers quote 3c. for steel bars out of warehouse. The warehouse quotations on cold-rolled steel bars and shafting are 3.60c. for rounds and hexagons and 4.10c. for flats and squares; 4.15c. for hoops and 3.65c. for bands.

Jobbers quote hard and medium deformed steel bars at 2.60c.

Structural Material.—Fabricating awards at over 11,000 tons are the heaviest in weeks. The largest individual letting, 5400 tons for a bridge at Portland, Ore., went to the American Bridge Co. Among pending projects, the Lake Shore Athletic Club, Chicago, requiring 4000 tons, has been revived, with the likelihood that the fabricating contract will be placed this week. Plain material continues to be quoted at 2.10c., Chicago.

The mill quotation on plain material is 2.10c., Chicago. Jobbers quote 3.10c. for plain material out of warehouse.

Rails and Track Supplies.—The Cotton Belt is expected to place its 15,000 tons of rails, as well as necessary fastenings, by next week. Miscellaneous orders for track supplies have been in fair volume, a local mill having booked 2000 tons of angle bars and 3900 tons of tie plates. An order for 170 tons of light rails was also placed with a Chicago producer.

Standard Bessemer and open-hearth rails, \$43; light rails, rolled from billets, 1.80c. to 1.90c., f.o.b. maker's mill.

Standard railroad spikes, 2.90c. to 3c. mill; track bolts with square nuts, 3.90c. to 4c. mill; steel tie plates, 2.35c., f.o.b. mill; angle bars, 2.75c., f.o.b. mill.

Jobbers quote standard spikes out of warehouse at 3.55c. base, and track bolts, 4.55c. base.

Cast Iron Pipe.—Lucas County, Ohio, has awarded 1750 tons to James B. Clow & Sons and 50 tons to the United States Cast Iron Pipe & Foundry Co. Wayne, Mich., has placed 500 tons with the National Cast Iron Pipe Co. Martins Ferry, Ohio, has awarded 500 tons

to James B. Clow & Sons. Chicago has placed 280 tons of 24-in. with the Standard Pipe Co. This last tonnage went at rather a sharp concession in price, but inasmuch as the pipe was of large diameter, the transaction is hardly representative of what can be done on the commoner sizes. In fact, the market generally appears to be stronger, ranging from \$41 to \$42, base Birmingham, for 6-in. and larger. Lansing, Mich., is in the market for 350 tons of 6-in.

We quote per net ton f.o.b. Chicago, as follows:
Water pipe, 4-in., \$52.20 to \$54.20; 6-in. and over, \$48.20 to \$50.20; Class A and gas pipe, \$4 extra.

Bolts, Nuts and Rivets.—Recent weakness in bolts and nuts has disappeared and discounts have recovered their old firmness. Specifications are coming in at an encouraging rate and prospects for the fall are considered bright. Rivets are still weak.

Jobbers quote structural rivets, 3.50c.; boiler rivets, 3.70c.; machine bolts up to $\frac{3}{4}$ x 4 in., 55 per cent off; larger sizes, 55 off; carriage bolts up to $\frac{3}{4}$ x 4 in., 50 off; larger sizes, 50 off; hot-pressed nuts, squares, tapped or blank, \$3.50 off; hot-pressed nuts, hexagons, tapped or blank, \$4 off; coach or lag screws, 60 per cent off.

Sheets.—Prices have undergone no further changes and appear to be steady at a minimum of 2.40c. for blue annealed, 3.30c. for black, and 4.30c. for galvanized, base Chicago district mills. Orders are still confined largely to early deliveries.

Chicago delivered prices from mill are 3.35c. for No. 28 black, 2.45c. to 2.50c. for No. 10 blue annealed and 4.35c. to 4.40c. for No. 28 galvanized. Delivered prices at other Western points are equal to the freight from Gary plus the mill prices, which are 5c. per 100 lb. lower than the Chicago delivered prices.

Jobbers quote f.o.b. Chicago: 3.50c. base for blue annealed, 4c. base for black, and 5c. base for galvanized.

Wire Products.—Reassuring crop reports have increased the confidence of mills, although actual buying by the jobbers for fall requirements has not yet developed in volume. Wire nails continue to range from \$2.70 to \$2.75, Chicago district mill; plain wire from \$2.55 to \$2.60; cement coated nails from \$1.90 to \$1.95, and galvanized barbed wire from \$3.40 to \$3.45. The situation in wire rods has not yet stabilized and this commodity is said to be available at \$46 to \$47, Chicago.

We quote warehouse prices f.o.b. Chicago: No. 8 black annealed wire, \$3.05 per 100 lb.; common wire nails, \$3.15 per keg; cement coated nails, \$2.25.

Reinforcing Bars.—If a decline in building activity is under way, it has not yet affected the volume of reinforcing business. Awards are numerous and much work is in prospect. Although some business has been placed recently for mill shipment, the warehouse quotation on billet steel reinforcing bars remains steady at 2.60c., Chicago. The reinforcing for the Stevens Hotel, Chicago, requiring from 1300 to 1600 tons, is expected to be placed within the next two weeks. Lettings include:

South Park Commission, Chicago, Thirty-first Street viaduct, 300 tons, and Oakwood Boulevard viaduct, 150 tons, to Kalman Steel Co.

Mason Street viaduct, Milwaukee, 700 tons, to Worden-Allen Co.

Lewis public school, Chicago, 150 tons, to Concrete Engineering Co.

Martha Wilson Memorial Hospital, Chicago, 125 tons, to Concrete Engineering Co.

Ideal Book Builders building, Chicago, 125 tons, to American System of Reinforcing.

State bridge, Moultrie County, Ill., 130 tons, to Olney J. Dean & Co.

Paving, Dowers Grove, Ill., 130 tons, of wire mesh to Olney J. Dean & Co.

Park Lane apartment building, Detroit, 100 tons, to Concrete Engineering Co.

Docks, Gulfport, Miss., 6000 tons, to Kansas City Bolt & Nut Co.

State Bank & Trust Co. building, Evanston, Ill., 250 tons, to Kalman Steel Co.

City of Chicago, Roosevelt Road viaduct, 200 tons, to Joseph T. Ryerson & Son.

Pending work includes:

Apartment building, Arlington Avenue and Clark Street, Chicago, 340 tons, R. C. Harris, architect.

Dance Pavilion, Lawrence and Winthrop Avenues, Chicago, 266 tons, Huszagh & Hill, architects.

Norman Bridges public school, Chicago, 150 tons, general contract awarded to Great Lakes Engineering Co.

Horace Mann public school, Chicago, 150 tons, general contract awarded to Lind Construction Co.

Florence Nightingale public school, Chicago, 150 tons, general contract awarded to Hanson Brothers.

Eagles' Club, Milwaukee, 250 tons, bids on general contract closing July 31.

Old Material.—Notwithstanding light demand from consumers, the market continues to gather strength, many grades of scrap having advanced. The answer seems to be that present prices will not bring out the scrap. Holders of material look for higher markets and are not disposed to sell at this time. Railroad lists include the Burlington, 7900 tons, and the Big Four, 3900 tons.

We quote delivery in consumers' yards, Chicago and vicinity, all freight and transfer charges paid, as follows:

Per Gross Ton	
Iron rails	\$17.50 to \$18.00
Cast iron car wheels	17.50 to 18.00
Relaying rails, 56 and 60 lb.	25.00 to 26.00
Relaying rails, 65 lb. and heavier	26.00 to 31.00
Forged steel car wheels	19.00 to 19.50
Railroad tires, charging box size	19.00 to 19.50
Railroad leaf springs, cut apart	19.00 to 19.50
Rails for rolling	17.75 to 18.25
Steel rails, less than 3 ft.	19.00 to 19.50
Heavy melting steel	16.00 to 16.25
Frogs, switches and guards, cut apart	17.00 to 17.50
Shoveling steel	15.75 to 16.00
Drop forge flashings	11.00 to 11.50
Hydraulic compressed sheets	13.50 to 14.00
Axle turnings	13.75 to 14.25
Steel angle bars	18.00 to 18.50
Steel knuckles and couplers	18.50 to 19.00
Coil springs	19.50 to 20.00
Low phos. punchings	18.00 to 18.50
Machine shop turnings	9.50 to 10.00
Cast borings	11.75 to 12.25
Short shoveling turnings	11.75 to 12.25
Railroad malleable	18.50 to 19.00
Agricultural malleable	18.00 to 18.50

Per Net Ton	
Iron angle and splice bars	16.75 to 17.25
Iron arch bars and transoms	20.25 to 20.75
Iron car axles	26.50 to 27.00
Steel car axles	17.00 to 17.50
No. 1 busheling	12.00 to 12.50
No. 2 busheling	8.50 to 9.00
Pipes and flues	11.00 to 12.00
No. 1 railroad wrought	14.50 to 15.00
No. 2 railroad wrought	14.25 to 14.50
No. 1 machinery cast	17.50 to 18.00
No. 1 railroad cast	17.00 to 17.50
No. 1 agricultural cast	16.50 to 17.00
Locomotive tires, smooth	16.00 to 16.50
Stove plate	14.50 to 15.00
Grate bars	14.50 to 15.00
Brake shoes	14.50 to 15.00

Part II of the report on the Iron Ores and Iron Industry of China is now available through the Geological Survey of China, Ministry of Agriculture and Commerce, Peking. In this part, Mr. Tegengren gives details as to the deposits along the Yangtse and in their southern coastal provings. There is also a chapter on the iron industry of China and a summary of the iron situation of the circum-Pacific region. It is an authoritative report on a region concerning which more rumor than fact has been available heretofore. The text is in both Chinese and English.

More than \$70,000 has been raised by a special committee of the Engineering Foundation, New York, which will erect and destroy an arch dam 100 ft. high on Stevenson Creek, a tributary of the San Joaquin River, about 60 miles east of Fresno, Cal. Testing an actual structure to destruction is new to engineering effort, and about \$100,000 will be spent to determine by this method the principles of concrete arch design.

Ownership of the Waterbury Castings Co., Waterbury, Conn., has passed to interests controlling the Mott Iron Works, Trenton, N. J., and the Albany Malleable Iron Co., for a consideration of approximately \$150,000. The castings company during the war was a large producer of Diesel engine parts.

New York

Structural Awards on a Large Scale— Pig Iron Buying on the Increase

NEW YORK, July 28.—Both sales of pig iron and new inquiry have been better in this market in the past week and there are more cases in which fourth quarter deliveries are specified. Probably 14,000 to 15,000 tons of iron has been sold through New York offices since our last report. Prices do not change. Whereas the Buffalo market is referred to by some sellers as firmer, it appears that sales of No. 2 plain have been made at \$18.25 and some No. 2X is reported to have gone at that price. One Buffalo sale was of 500 tons for delivery in New Jersey. A Brooklyn foundry has closed for 1000 tons, which is reported to have been divided equally between Buffalo and Dutch irons. The offering of India iron at \$20.25 to \$20.50, duty paid, in the New England district has operated against any rise in domestic prices, and Dutch iron has been offered at not far from the same price. An inquiry for 1500 tons of low phosphorus iron has come up in New Jersey and there is keen competition between sellers of imported and domestic irons, foreign hematite being quoted at \$24.50 to \$25, duty paid, Atlantic port. Foundry operations in this district have been maintained at their recent rate, or little above. There is no very lively interest in the possibilities of a British coal strike on the part of pig iron buyers, but it is recognized that in case of a strike coal might be exported in considerable quantities, with a consequent advance in domestic coal and coke markets. Stocks of pig iron in the hands of producers, taking the country through, have increased slightly.

We quote delivered in the New York district as follows, having added to furnace prices \$2.52 freight from eastern Pennsylvania, \$4.91 from Buffalo and \$5.44 from Virginia:

East. Pa. No. 2, sil. 1.75 to 2.25	\$22.52 to \$22.77
East. Pa. No. 1X fdy., sil. 2.75 to 3.25	23.02 to 23.52
East. Pa. No. 2X fdy., sil. 2.25 to 2.75	22.52 to 23.02
Buffalo, sil. 1.75 to 2.25	23.16 to 23.91
No. 2 Virginia, sil. 1.75 to 2.25	28.44

Ferroalloys.—Sales of ferromanganese in the past week have been light at about 1000 to 1500 tons, but potential sales are regarded as heavy. Definite inquiries amount to several thousand tons and there are a number of consumers who are ready to buy as soon as they feel that conditions warrant it. The rumor persists that the present price of \$115, seaboard, may be lower a little later, but sellers insist that there is no chance of a reduction. The speigleisen market is only moderately active with prices unchanged. Rumors of offerings of foreign spiegeleisen are unconfirmed.

Cast Iron Pipe.—The market on bell and spigot pipe continues firm with most makers well booked, particularly on the smaller sizes. Most of the current business is in small lots but the American Waterworks Construction Co. is reported in the market for about 2500 tons of water pipe for Deal, N. J. Bids on the 2200 tons of 30-in. water pipe for the Panama Canal have been rejected for the second time and there will be a third opening Aug. 5. It is understood that the low bidder, the Pont-a-Mousson works in France, had included the 20 per cent duty in its bid, while the Government requires a bid without duty added, but low enough to permit of the theoretical addition of a duty. The soil pipe market continues weak with high discounts still prevailing with some makers. A fair volume of business is reported.

We quote pressure pipe per net ton, f.o.b. New York, in carload lots, as follows: 6-in. and larger, \$50.60 to \$51.60; 4-in. and 5-in., \$55.60 to \$56.60; 3-in., \$65.60 to \$66.60, with \$5 additional for Class A and gas pipe. Discounts of both Northern and Southern makers of soil pipe, f.o.b. New York, are as follows: 6-in., 45 to 50 per cent off list; heavy, 55 to 60 per cent off list.

Finished Iron and Steel.—July steel business has been much more satisfactory in volume than in prices. With some local selling offices business has exceeded the June totals, and in most instances it has at least equalled last month's tonnage. Prices gain no strength,

and in plates and shapes there is pronounced weakness. Some of the Eastern plate mills are now openly quoting 1.80c. and 1.85c., Pittsburgh, on the more desirable lots, or at least are going to that figure rather than let orders get away from them, and 1.90c. applies now only on very small orders. In structural shapes the situation is much the same, in that 1.90c., Pittsburgh, frequently is not low enough to take the more desirable lots and 1.80c., Pittsburgh, has been done in a number of instances. A little weakness has appeared in wire nails, which have been sold at 2.60c. per lb., Pittsburgh, though plain wire remains firm at 2.50c. Sheet mills have had better success in establishing galvanized sheets at 4.20c. than they have in getting the black sheet price up to 3.15c. It appears that nearly all sales of galvanized are at 4.20c., but on black sheets 3.10c. is commoner than 3.15c. Efforts have been made by blue annealed sheet makers to obtain 2.30c., Pittsburgh, and with fair success, though sales are still being made at 2.25c., but in lessening numbers. Steel and wrought pipe are in good demand and discounts are firm. The most striking feature of the local steel situation is in structural, which is very active, the past week having been one of the biggest of the year in the volume of awards. Inquiries also are large in the aggregate. Fabricators have so much business on their books that deliveries are now 10 to 12 weeks.

We quote for mill shipments, New York delivery, as follows: Soft steel bars, 2.34c.; plates, 2.14c. to 2.24c.; structural shapes, 2.14c. to 2.24c.

Warehouse Business.—It has been a long time since jobbing houses in this district were as active as during the last week. In some cases it was the best week of the year. Demand for structural steel was notably aggressive and also bars and plates. Though the movement of sheets was good, prices suffer from a price-cutting warfare. Galvanized sheets have gone as low as 4.70c. and as high as 5.35c. Otherwise prices are unchanged. We quote boiler tubes per 100 ft. as follows:

Lapwelded steel tubes, 2-in., \$17.33; seamless steel, 2-in., \$20.24; charcoal iron, 2-in., \$25; 4-in., \$67.

Coke.—One maker is quoting \$4 to \$4.25 at ovens on standard foundry, which encounters competition with 72-hr. machine-drawn coke being placed at \$3.75. Operators look for better forward demand. We quote by-product coke at \$10.41 per net ton northern New Jersey points; Connellsville foundry coke, delivered, \$7.66 to \$8.66 at Newark, Jersey City and northern New Jersey points; \$8.54 to \$9.54 at Brooklyn rail terminals, and \$9.29 to \$10.29 at Connecticut points.

Old Material.—Consumer buying of scrap is still limited, but active demand by brokers continues to force the market up, particularly on heavy melting steel, which shows a further slight advance this week. No. 1 heavy melting steel is quotable today at \$16 to \$16.50 per ton, delivered eastern Pennsylvania, the buying price of brokers. Borings and turnings are only moderately active with the buying price at about \$12.50 per ton, delivered. Stove plate shows a slight advance, as a result of broker activity, \$13.75 per ton, delivered West Mahwah, N. J., being paid and \$14 per ton, delivered to an eastern Pennsylvania consumer.

Buying prices per gross ton New York follow:

Heavy melting steel, yard	\$11.25 to \$11.75
Heavy melting steel (railroad or equivalent)	13.00 to 13.50
Rails for rolling	13.00 to 13.50
Relaying rails, nominal	23.00 to 24.00
Steel car axles	20.00 to 20.50
Iron car axles	23.00 to 24.00
No. 1 railroad wrought	14.00 to 14.50
Forge fire	10.25 to 10.75
No. 1 yard wrought, long	13.00 to 13.50
Cast borings (steel mill)	9.25 to 9.75
Cast borings (chemical)	12.00 to 12.50
Machine shop turnings	9.25 to 9.75
Mixed borings and turnings	9.00 to 9.50
Iron and steel pipe (1 in. diam. not under 2 ft long)	12.00 to 12.50
Stove plate	10.50 to 12.00
Locomotive grate bars	10.50 to 11.00
Malleable cast (railroad)	14.50 to 15.00
Cast iron car wheels	13.50 to 14.00
No. 1 heavy breakable cast	13.00 to 13.50

Prices which dealers in New York and Brooklyn are quoting to local foundries per gross ton follow:

No. 1 machinery cast	\$17.00 to \$17.50
No. 1 heavy cast (columns, building material, etc.), cupola size	15.50 to 16.00
No. 2 cast (radiators, cast boilers, etc.)	14.50 to 15.00

San Francisco

General Buying Sluggish—Price Tone Firmer—Structural Material Active

SAN FRANCISCO, July 25 (*By Air Mail*).—Stronger interest in structural material and a somewhat firmer price tone were the two principal developments of the past week. General buying is quiet in nearly all markets with the exception of structural material. Because of the absence of large business the actual strength of present prices has not been tested, but there are definite indications that most of the Eastern mills will endeavor to hold to their prevailing quotations, particularly in plates and shapes. The evidence of price shading continues, however, in plates and sheets and especially in nails. In plates 2.35c. c.i.f. coast ports is still possible for round tonnages. In galvanized sheets less than 4.15c., Pittsburgh, is understood to have been named. In wire nails it is reported that less than \$3.15 is obtainable for a desirable order. In spite of isolated instances of price shading the fact remains that going business is being placed in a stronger market than was the case a month or six weeks ago. The Standard Oil Co. recently put out an inquiry for about 2000 base boxes of tin plate for shipment to Honolulu. The Southern Pacific Co. has closed bids for 100 to 200 tons of bolts and nuts.

Pig Iron.—Buying is mostly for small lots, and no fresh inquiries of size have been developed. The Southern Pacific Co. has not yet covered its recent inquiry of 1000 to 1500 tons of foundry iron. A shipment of 55½ tons of Chinese foundry iron was received by a Japanese importer during the week, but is not known to have been placed on the market. Prices are unchanged.

*Utah basic	\$27.00 to \$28.00
*Utah foundry, sil. 1.75 to 2.25	27.00 to 28.00
**English foundry	27.00 to 28.00
**Belgian foundry	26.00
**Dutch foundry	25.00
**Indian foundry	26.50
**German foundry	26.50
*Birmingham, Ala., foundry, sil. 2.75 to 3.25	29.00 to 30.00

*Delivered San Francisco.

**Duty paid, f.o.b. cars San Francisco.

Ferroalloys.—About 25 tons of English ferromanganese was placed in Portland, Ore., recently with a San Francisco importer at \$117.50, duty paid, incoming dock. Swedish ferrosilicon is still quoted at \$93, duty paid, incoming stock.

Shapes.—Awards of the week totaled 5452 tons, and fresh inquiries will require about 10,000 tons. Prices are unchanged, 2.40c. to 2.45c., c.i.f. coast ports. The general price tone in respect to shapes is firmer than it was a few weeks ago. Bids are expected to be called in about two months for 5000 tons required for a hotel at West Seventh and Bixel Streets, Los Angeles. Bids will be called Aug. 18 for 2000 tons for the Puyallup River bridge at Tacoma, Wash.

Plates.—Few large tonnages are known to have been closed. The Associated Oil Co. placed 100 tons for still bottoms with an Eastern independent mill, and the Contract Water Co., Azusa, Cal., has closed bids for about 200 tons for a pipe line. It is reported, but not verified, that the McKenzie River water supply system, Eugene, Ore., for which 1500 tons will be required, will be re-advertised, and new bids called Aug. 4. Prices remain 2.35c. to 2.40c., c.i.f. coast ports. While 2.35c. is possible for round tonnages, 2.40c. is more general for going business in the present market.

Sheets.—Although most of the Eastern mills are now quoting 4.20c., Pittsburgh, in galvanized sheets, two quotations are understood to have been made below 4.15c. during the past week. Business is small and few large orders have been placed recently. Blue annealed sheets are quoted 2.30c. to 2.40c., and black sheets, 3.15c. to 3.20c.

Bars.—Most of the lettings in reinforcing bars during the week were for less than 100 ton lots. Gunn, Carle & Co. took 400 tons for the Mission High School, Eighteenth and Dolores Streets, which was the only sizeable award. Jobbers quote out of stock prices as

follows: 250 tons, 3.25c., base; carload, 3.35c., base; l.c.l., 3.80c., base. Local mills quote soft steel bars at 2.45c., 100 tons, f.o.b. San Francisco, and 2.50c., per 100-lb. f.o.b. San Francisco.

Cast Iron Pipe.—Only one public letting has been announced: Santa Cruz, Cal., 4-in. B, 109 tons, to U. S. Cast Iron Pipe & Foundry Co. Prices are unchanged, \$52 to \$53 base, water shipment, San Francisco district. A number of sizable jobs are pending.

Warehouse Business.—Jobbers' sales during July have fallen off slightly as compared with June, which is attributed to seasonal conditions. Prices are unchanged, and stocks generally are said to be fairly well balanced.

Merchant bars, \$3.30 base per 100 lb.; merchant bars, ¾ in. and under, rounds, squares and flats, \$3.80 base, per 100 lb.; soft steel bands, \$4.15 base, per 100 lb.; angles, ¾ in. and larger x 1½ in. to 2¾ in., inc., \$3.30 base, per 100 lb.; channels and tees, ¾ in. to 2¾ in., inc., \$3.30 base, per 100 lb.; angles, beams and channels, 3 in. and larger, \$3.30 base, per 100 lb.; tees, 3 in. and larger, \$3.30 base, per 100 lb.; universal mill plates, ¾ in. and heavier, stock lengths, \$3.30 base per 100 lb.; spring steel, ¼ in. and thicker, \$6.30 base, per 100 lb.; wire nails, \$3.50 base, per 100 lb.; cement coated nails, \$3 base, per 100 lb.; No. 10 blue annealed sheets, \$3.70 per 100 lb.; No. 28 galvanized sheets, \$5.75 per 100 lb.; No. 28 black sheets, \$4.65 per 100 lb.

Coke.—A local importer expects to receive a shipment of English coke early in August. Current business is small but for this season of the year fairly consistent. Prices are unchanged.

English beehive, \$14.50 to \$17 at incoming dock, and English by-product, \$12.50 to \$14; German by-product, \$14 to \$14.50; Birmingham, Ala., by-product, \$19 to \$20 delivered; Wise County, Va., beehive, \$22 delivered.

Cincinnati

Pig Iron Stiffening and Better Tone in Sheets

CINCINNATI, July 28.—Pig iron sales during the past week have totaled approximately 5000 tons, the bulk of which consisted of Northern foundry iron. Buyers are manifesting little interest and orders are confined chiefly to small lots for third quarter delivery. The fact that small tonnages have been booked at \$19.50, Ironton, by southern Ohio furnaces discloses the slowly growing strength of this price. Attractive business, however, will still bring out a \$19, Ironton, quotation for third quarter shipments. A central Ohio melter has closed for 1000 tons of malleable, while a Tennessee consumer has taken 1200 tons of foundry for last half delivery. Sales of Tennessee iron have been of little importance. The price remains at \$17.50, Birmingham. Movement of Alabama iron has been negligible and furnaces are quoting \$18.50 to \$19, Birmingham. A Michigan melter has purchased 400 tons of 14 to 16 per cent Bessemer ferrosilicon. Silvery buying is inconsequential but prices are holding up fairly well. A local dealer has sold a car of fluorspar at \$16. One car of ferromanganese has also been booked locally at \$115. Inquiries are light and indications point to restricted activities in the immediate future.

Based on freight rates of \$4.05 from Birmingham and \$2.27 from Ironton we quote f.o.b. Cincinnati:

Alabama, fdy., sil. 1.75 to 2.25 (base)	\$22.55 to \$23.05
Alabama fdy., sil. 2.25 to 2.75	23.05 to 23.55
Tennessee fdy., sil. 1.75 to 2.25	21.55
Southern Ohio silvery, 8 per cent	28.27
Southern Ohio fdy., sil. 1.75 to 2.25	21.27 to 21.77
Southern Ohio, malleable	21.27 to 21.77

Bars, Shapes and Plates.—The inflow of orders has increased slightly. One of the large sellers declares that its volume of business during July has been considerably ahead of that during June. The most encouraging aspect is the interest displayed by buyers, despite the fact that a spell of midsummer dullness usually intervenes at this time of the year. While orders are individually small, they reach a compara-

tively substantial total. Demand for bars is limited to carload lots. No deviation from the price of 2c., Pittsburgh, is reported. Further concessions have been made in plate quotations. While the major portion of the orders have been booked at 1.90c., Pittsburgh, competition among sellers for inviting tonnages has developed a price of 1.85c., Pittsburgh. It is anticipated that plate quotations will remain weak in the immediate future. The Louisville & Nashville Railroad is reported to have placed 250 tons of plates for shipment during the remainder of the third quarter. Inquiry for shapes is dull, but prices apparently are steady at 2c., Pittsburgh. Structural activities have assumed broader proportions. Lettings are more numerous and the prospects of several attractive projects maturing in the near future are excellent. The McClintic-Marshall Co. will supply 1250 tons for several bridges to be constructed by the Louisville & Nashville Railroad. Several awards, ranging from 125 to 180 tons, have been made. The general contract for the new building for the Cincinnati *Enquirer's* new building, estimated at 250 tons, will be purchased by the company securing the general contract. The price of rail steel bars is softer and is quoted at 1.90c., mill. New billet bars can be obtained at 2c. to 2.10c., mill.

Wire Goods.—Mills in the Ironton district continue to resort to price cutting to obtain sufficient business to keep their production up to a satisfactory rate. The keen rivalry for orders, however, has not developed any sales that would not ordinarily have been booked in this territory. Jobbers have fair stocks on hand and will not buy extensively until they have liquidated a considerable portion of their merchandise. Pittsburgh mills are adhering to their quotation of 2.65c., Pittsburgh or Cleveland, on common wire nails. They are losing business in many instances because Ironton producers have underbid them with a price of 2.60c., Ironton, or 2.74c., delivered in Cincinnati by barge. Consumers, however, have the expense of hauling from the river bank to the final destination. Plain wire is being sold at 2.50c., Pittsburgh or Cleveland, by Eastern mills, but Ironton interests are booking business at 2.45c., Ironton. The local market has been somewhat listless. Buying has dropped off in the past two weeks and indications point to reduced sales for the next few weeks.

Sheets.—Buyers are manifesting more confidence by contracting for their needs through the third quarter. New business now being placed is in excess of shipments, according to several mills in this district. Curtailment of production has brought about this readjustment, which is tending to prevent further price declines. Orders and specifications this month will show an increase over those of June. Pick-up in the market is forecast by the inability of certain mills to make deliveries as promptly as they have in the past few months. Galvanized sheets, which are being maintained at 4.20c., Pittsburgh, are showing more strength than other grades. Producers insist that the mounting cost of making galvanized sheets will inevitably result in higher prices. Black sheets are in fair demand at 3.15c., Pittsburgh. Blue annealed sheets have remained at 2.30c., Pittsburgh, with little difficulty being experienced by sellers in holding the price up to this level. There is little likelihood that quotations will recede in the immediate future. Mills in this territory are operating on a scale that approaches 80 per cent of capacity.

Tin Plate.—Can makers are encouraged at the prospects for a most successful canning season. They have, in many cases, sent in their specifications covering their third quarter requirements. Shading of the price of \$5.50 per base box, Pittsburgh, is still indulged in by sellers.

Reinforcing Bars.—The Diehl Steel Co. will furnish 250 tons for the new building of the Sacred Heart Guild, Cincinnati. The Bourne-Fuller Co. has closed for 100 tons for the Stark Building, Louisville, Ky. The contract for the Eighth Street Viaduct, Cincinnati, 100 tons, has been awarded to the Pollak Steel Co. Activities have opened up again and sellers are now

figuring on several attractive jobs. It is expected that the bar tonnage for the Cincinnati *Enquirer's* new building, estimated at 250 tons, will be purchased by the company securing the general contract. The price of rail steel bars is softer and is quoted at 1.90c., mill. New billet bars can be obtained at 2c. to 2.10c., mill.

Warehouse Business.—An appreciable increase in the number of orders is the most encouraging feature. One of the larger jobbers is of the opinion that his sales during July will reveal a 10 per cent increase over those of the previous month. Other distributors report better sales for the past month than they had hoped for. Consumers still cling to the policy of buying only enough to fill immediate requirements. Structural steel has been moving in greater volume, while the sales of reinforcing bars have taken an upward trend. Demand for sheets has been above normal for the midsummer period. There has been no relaxation in the competition for nail and wire business. Sales have been spotty, however, despite the low prices that have been brought out. Weakness in hoop prices have been evidenced recently. Pipe and tubing, which have been sluggish, are slightly more active, but have fallen off rather heavily as compared with last month's sales. Prices, in general, are firm.

Cincinnati jobbers quote: Iron and steel bars, 3.30c.; reinforcing bars, 3.30c.; hoops, 4c. to 4.25c.; bands, 3.95c.; shapes, 3.40c.; plates, 3.40c.; cold-rolled rounds and hexagons, 3.85c.; squares, 4.35c.; open-hearth spring steel, 4.75c. to 5.75c.; No. 10 blue annealed sheets, 3.60c.; No. 28 black sheets, 4.10c.; No. 28 galvanized sheets, 5.25c.; No. 9 annealed wire, \$3.00 per 100 lb.; common wire nails, \$2.95 per keg base; cement coated nails, \$2.40 per keg; chain, \$7.55 per 100 lb. base; large round head rivets, \$3.75 base; small rivets, 65 per cent off list. Boiler tubes, prices net per 100 ft., lap welded steel tubes, 2-in., \$18; 4-in., \$38; seamless, 2-in., \$19; 4-in., \$39.

Coke.—Buyers are still contracting for their last half requirements and sales during the past week have approximated 11,000 tons. More than 6000 tons of this total constituted foundry coke, while the rest was divided between furnace and domestic coke. Shipments on contract during July have been in about the same volume as in June. Production of by-product foundry coke in this territory is between 75 and 80 per cent of capacity, with prospects of an increase in output to 85 per cent within 10 days. Prices are showing stability. By-product foundry coke is quoted at \$7.50 per net ton at ovens.

Old Material.—Mill buying is lagging. One large mill in this territory has asked for temporary suspension of shipments. Others have sufficient stock to take care of their immediate requirements. A portion of the Louisville & Nashville monthly list, which closed last week, has moved into this market. The Big Four Railroad has a small list, which closes next week. Prices are unchanged.

We quote dealers' buying prices, f.o.b. cars, Cincinnati:

Per Gross Ton	
Heavy melting steel	\$14.00 to \$14.50
Scrap rails for melting	14.00 to 14.50
Short rails	18.00 to 18.50
Relaying rails	28.00 to 28.50
Rails for rolling	15.00 to 15.50
Old car wheels	14.00 to 14.50
No. 1 locomotive tires	17.00 to 17.50
Railroad malleable	16.00 to 16.50
Agricultural malleable	15.50 to 16.00
Loose sheet clippings	10.00 to 10.50
Champion bundled sheets	12.00 to 12.50

Per Net Ton	
Cast iron borings	8.50 to 9.00
Machine shop turnings	7.50 to 8.00
No. 1 machine cast	18.00 to 18.50
No. 1 railroad cast	16.00 to 16.50
Iron axles	22.50 to 23.00
No. 1 railroad wrought	11.50 to 12.00
Pipes and flues	9.00 to 10.00
No. 1 busheling	10.50 to 11.00
Mixed busheling	9.50 to 10.00
Burnt cast	10.00 to 10.50
Stove plate	10.50 to 11.00
Brake shoes	10.50 to 11.00

A meeting of creditors of the National Engineering & Machine Co., Sharpsburg, Pa., is to be held at Room 23, St. Nicholas Building, 450 Fourth Avenue, Pittsburgh, on Aug. 4. The schedules of the company filed when it was adjudicated bankrupt on March 11 showed liabilities of \$41,730.65 and assets of \$83,900.71. Watson B. Adair is referee in bankruptcy.

Birmingham

Moderate Buying of Pig Iron, Steel and Cast Iron Pipe

BIRMINGHAM, July 28.—No large sales of pig iron have been learned of but it is claimed that sales are easier and quotations firmer. For No. 2 foundry, \$18.50 per ton is being asked and sales are reported for the fourth quarter on a \$19 per ton base. It is believed that few of the melters have purchased sufficiently for the remainder of the year.

We quote per gross ton, f.o.b. Birmingham district furnaces, as follows:

No. 2 foundry, 1.75 to 2.25 sil....	\$18.00 to \$19.00
No. 1 foundry, 2.25 to 2.75 sil....	19.00 to 19.50
Basic	18.50 to 19.50
Charcoal, warm blast.....	30.00 to 32.00

Cast Iron Pipe.—Additional orders are reported and there is steady operation at the cast iron pressure pipe plants. As has been a custom for a long time shipments are equal to the make. Quotations are firm at \$40 for 6-in. and over with indications of the prices remaining firm indefinitely. Little difference in operations is looked for through the remainder of the summer, and with winter buying up to expectations, there will be more or less production and delivery after a large proportion of the country is unable to lay pipe. Soil pipe and fittings demand is showing slight improvement and this week the make will be increased.

Finished Steel.—The several steel fabricating plants are very active. The Florida business is holding up well. Soft steel bars in Birmingham are quoted at 2.15c. to 2.25c. Warehouse stocks of steel here are still of sizable proportions.

Coke.—Production is steady and independent producers are finding a market for their coke, with quotations ranging between \$4.50 and \$5 on foundry coke. One of the independent coke producers, using only the other by-products of coal, may close down its by-product plant for the time being. Belief is that there will be steady demand for coke indefinitely.

Old Material.—Contracts for four to six months delivery on old material are not proving acceptable to dealers in this territory at present quotations. No change has been made in the prices recently but the weakness has disappeared. Heavy melting steel at \$13 apparently is not in demand.

We quote per gross ton, f.o.b. Birmingham district yards, as follows:

Cast iron borings, chemical....	\$15.00 to \$16.00
Heavy melting steel	13.00 to 14.00
Railroad wrought	12.00 to 13.00
Steel axles	16.00 to 17.00
Iron axles	16.00 to 17.00
Steel rails	13.00 to 14.00
No. 1 cast	16.00 to 16.50
Tramcar wheels	16.50 to 17.00
Car wheels	15.00 to 16.00
Stove plate	13.00 to 13.50
Machine shop turnings	7.00 to 8.00
Cast iron borings	7.00 to 8.00
Rails for rolling	16.50 to 17.00

Boston

Pig Iron Buying Less Active with Prices Unsettled

BOSTON, July 28.—Buying of pig iron is less active, sales the past week, not including basic, aggregating 6000 tons, contrasted with more than 10,000 tons last week. Activity centers in Buffalo district and western Pennsylvania irons. Efforts to hold Buffalo on a \$19 a ton furnace base have not been successful. No. 2X has sold in large and small tonnages at \$23.41 a ton delivered, or \$18.50 furnace, and No. 2 plain at \$23.16 delivered, or \$18.25 furnace, and iron apparently is available today at these prices. Western Pennsylvania No. 2X is \$24.41 delivered or \$18.50 furnace, with sales the past week of 1000 tons. A southern New England

plant has purchased 5000 tons basic, but details are lacking. The foreign iron market is mixed. India is selling on a delivered basis equivalent to Buffalo or a shade less. On the other hand, at least two foundries are dickering on large tonnages of Dutch iron in stock at Providence, R. I., at a price far below the cheapest domestic iron available. Inquiries are more numerous, but are for small tonnages.

We quote delivered prices on the basis of the latest sales as follows, having added \$5.65 freight from eastern Pennsylvania, \$4.91 from Buffalo, \$5.92 from Virginia, and \$9.60 from Alabama:

East. Penn., sil. 1.75 to 2.25....	\$23.65 to \$24.15
East. Penn., sil. 2.25 to 2.75....	24.15 to 24.65
Buffalo, sil. 1.75 to 2.25.....	23.16 to 23.66
Buffalo, sil. 2.25 to 2.75.....	23.41 to 23.91
Virginia, sil. 1.75 to 2.25.....	28.42 to 29.92
Virginia, sil. 2.25 to 2.75.....	28.92 to 30.42
Alabama, sil. 1.75 to 2.25.....	28.10 to 28.60
Alabama, sil. 2.25 to 2.75.....	28.60 to 29.11

Cast Iron Pipe.—Bids have been taken by Danbury, Conn., on 1000 tons of 30-in. pipe, but no award has been made at yet. Other municipalities are sounding out the market for fall requirements, but few specific amounts are given and inquiry is mostly of a private nature. The market for small pipe remains firm, while that for large is subject to price concessions. One of the large Massachusetts gas companies is feeling out the market on a large amount of pipe to be required this fall. Prices quoted locally on domestic cast iron pipe follow: 4-in., \$60.10 a ton delivered common Boston freight rate points; 6-in. to 16-in., \$56.10; 20-in. and larger, \$55.10. The usual \$5 differential and Class A and gas pipe is demanded.

Coke.—Continued improvement is noted in specifications against by-product foundry coke contracts. Oven shipments average 25 per cent to 30 per cent ahead of those for June. Much of the coke now being taken by foundries is in anticipation of a coal strike and higher prices for fuel. Consumption of fuel is little if any heavier than last month, but indications are it will begin to increase in August and continue to gain the rest of 1925, largely as a result of an increase in the demand for certain types of textile, paper and rubber machinery. New England jobbing foundries collectively are reported as operating 40 per cent of capacity. Both the New England Coal & Coke Co. and the Providence Gas Co. quote by-product foundry coke at \$11.50 a ton delivered within New England.

Old Material.—An advance of 50c. a ton on heavy melting steel is the outstanding feature of the old material market. The advance is the result of large purchases by Pennsylvania steel mill interests. Higher prices have curtailed rather than increased offerings, as holders are waiting for still higher prices. Some activity is noted in machine shop turnings, forged scrap, skeleton, flashings and cotton ties at firm prices, but the old material market in general is not active.

The following prices are for gross ton lots delivered consuming points:

Textile cast	\$20.00 to \$21.00
No. 1 machinery cast	19.00 to 19.50
No. 2 machinery cast	15.50 to 16.50
Stove plates	13.00 to 13.50
Railroad malleable	19.00 to 19.50

The following prices are offered per gross ton lots, f.o.b. Boston rate shipping points:

No. 1 heavy melting steel.....	\$12.00 to \$12.50
No. 1 railroad wrought	13.00 to 13.50
No. 1 yard wrought	12.00 to 12.50
Wrought pipe (1-in. in diam., over 2 ft. long)	11.00 to 11.50
Machine shop turnings.....	8.50 to 9.00
Cast iron borings, chemical	10.50 to 11.00
Cast iron borings, rolling mill....	8.50 to 8.75
Blast furnace borings and turnings	7.50 to 8.00
Forged scrap	10.00 to 10.50
Bundled skeleton, long	9.25 to 9.75
Forged flashings	9.50 to 10.00
Bundled cotton ties, long	8.00 to 8.50
Bundled cotton ties, short	10.00 to 10.50
Shaftings	19.00 to 19.50
Street car axles	18.00 to 18.50
Rails for rerolling.....	12.50 to 13.00
Scrap rails	11.50 to 12.00

There are approximately 3000 scrap iron yards in the United States, employing probably 50,000 workers, and there are in addition 150,000 scrap collectors who depend on this occupation for a livelihood, according to an article in *Commerce Monthly*.

St. Louis

Pig Iron Again Quiet—Some Advances in Scrap

ST. LOUIS, July 28.—The market for pig iron is quiet again following a week of activity, sales amounting to about 1800 tons, of which about 1500 tons were made by the St. Louis Coke & Iron Co. The melt is low but increasing, due to the activity of gray iron jobbing foundries and engine manufacturers, two of the latter concerns working night and day. The market is firm, with Northern iron selling at \$20.50 to \$21, Chicago; Southern \$17.50 to \$19, Birmingham, a few sales being made at the higher price, and the local make, \$20.50 to \$21, Granite City. A Quincy specialty maker closed this week for 600 tons of foundry iron for last half shipment, a Kansas City melter bought 200 tons for third quarter shipment, and other sales by the St. Louis Coke & Iron Co. totaled 850 tons. Inquiries pending include: malleable, 1500 tons for a Peoria melter, 800 tons for a Decatur, Ill., concern and 1200 tons for a Chattanooga, Tenn., melter; and foundry, 900 tons for an Illinois stove concern.

We quote delivered consumers' yards, St. Louis, as follows, having added to furnace prices \$2.16 freight from Chicago, \$5.17 from Birmingham, all rail, and 81c. average switching charge from Granite City.

Northern fdy., sil. 1.75 to 2.25	\$22.66 to \$23.16
Northern malleable, sil. 1.75 to 2.25	22.66 to 23.16
Basic	22.66 to 23.16
Alabama fdy., sil. 1.75 to 2.25 (rail)	23.67 to 24.17
Tennessee fdy., sil. 1.75 to 2.25	22.67
Granite City iron, sil. 1.75 to 2.25	21.31 to 21.81

Coke.—The St. Louis Coke & Iron Co. closed contracts during the week for about 15,000 tons of foundry coke to be shipped during this year. Of this, 7000 to 8000 tons are for an East Side concern. Other contracts were for 300 to 1500 tons. Domestic coke is beginning to show some signs of life.

Old Material.—The market for old material is strong, with some items advancing, although sales to consumers in the district amount to almost nothing. It is again a dealers' market, competition being keen for material despite the likelihood there will be no buying movement of consequence for several weeks. No material is coming in from the country dealers. Railroad lists are bringing good prices. These lists include: Chicago, Burlington & Quincy, 9000 tons; Big Four, 2200 tons, including 1000 tons of melting steel; Union Pacific, 2100 tons; Frisco, 700 tons; Louisville, Henderson & St. Louis, 1200 tons of relaying rails. The Harry Benjamin Equipment Co. bought 1700 tons of relaying rails from the Atchison, Topeka & Santa Fe Gulf lines.

We quote dealers' prices f.o.b. consumers' works, St. Louis industrial district and dealers' yards, as follows:

Per Gross Ton	
Iron rails	\$14.00 to \$14.50
Rails for rolling	18.00 to 18.50
Steel rails less than 3 ft.	18.50 to 19.00
Relaying rails, 60 lb. and under	24.00 to 25.00
Relaying rails, 70 lb. and over	30.00 to 30.50
Cast iron car wheels	18.00 to 18.50
Heavy melting steel	15.00 to 15.50
Heavy shoveling steel	15.00 to 15.50
Frogs, switches and guards cut apart	17.00 to 17.50
Railroad springs	18.00 to 18.50
Heavy axles and tire turnings	11.50 to 12.00
No. 1 locomotive tires	16.50 to 17.00

Per Net Ton	
Steel angle bars	15.00 to 15.50
Steel car axles	18.00 to 18.50
Iron car axles	24.00 to 24.50
Wrought iron bars and transoms	19.25 to 19.75
No. 1 railroad wrought	13.25 to 13.75
No. 2 railroad wrought	13.25 to 13.75
Cast iron borings	10.00 to 10.50
No. 1 busheling	11.50 to 12.00
No. 1 railroad cast	16.00 to 16.50
No. 1 machinery cast	17.50 to 18.00
Railroad malleable	14.00 to 14.50
Machine shop turnings	8.00 to 8.50
Champion bundled sheets	9.00 to 9.50

Finished Iron and Steel.—The principal new business in sight is 800 tons of sheet piling and 2400 tons of reinforcing bars for the Stacey Park Reservoir, a unit in the St. Louis waterworks system. The Laclede

Steel Co. sold 450 tons of reinforcing bars for the Y. M. C. A. building. No new railroad inquiries are out. A fair amount of small-tonnage inquiries are being received for plates, bars and shapes, but there is no sheet business in this section.

For stock out of warehouse we quote: Soft steel bars, 3.15c. per lb.; iron bars, 3.15c.; structural shapes, 3.25c.; tank plates, 3.25c.; No. 10 blue annealed sheets, 3.60c.; No. 28 black sheets, cold rolled, one pass, 4.50c.; galvanized sheets, No. 28, 5.50c.; black corrugated sheets, 4.65c.; galvanized, 5.65c.; cold-rolled rounds, shafting and screw stock, 3.70c.; structural rivets, 3.65c.; boiler rivets, 3.85c.; tank rivets, $\frac{1}{2}$ in. diameter and smaller, 70 per cent off list; machine bolts, 55 per cent; carriage bolts, 50 per cent; lag screws, 60 per cent; hot pressed nuts, squares, \$3.50; hexagons, blank or tapped, \$4 off list.

Buffalo

Fair Buying of Pig Iron and Steel, But Scrap Dull

BUFFALO, July 28.—Inquiry for the week ranges between 4000 and 5000 tons. The most interesting one was for 2000 tons of foundry iron from a manufacturer of heating apparatus near New York. This purchaser, it is stated, was unable to place its requirements with a district furnace at lower than \$19, so bought Indian iron at \$18. The Gould Coupler Co., which was in the market for 500 tons of malleable, is said to have placed this tonnage. Local furnaces see a stiffening condition to the market, though the \$18.25 price has not disappeared. Stocks are being materially cut, one local maker having reduced its stock 60 to 75 per cent in the last two months. The Wickwire Spencer furnace now in blast will be on foundry iron till Aug. 1, following which it will make malleable, then basic.

We quote prices f.o.b. gross ton, Buffalo, as follows:

No. 2 plain, sil. 1.75 to 2.25	\$18.25 to \$19.00
No. 2X foundry, sil. 2.25 to 2.75	18.50 to 19.50
No. 1 foundry, sil. 2.75 to 3.25	19.00 to 20.00
Malleable, sil. up to 2.25	19.00
Basic	18.50
Lake Superior charcoal	29.28

Finished Iron and Steel.—Conditions are better than they were two months ago. Bars are firm at 2c., and so are shapes. Pipe specifications are good, with no change in price. Sheets are firming with 4.465c., delivered Buffalo, being quoted on galvanized. Pittsburgh mills are quoting a going price of 3.15c. on black sheets, though 3.10c. has been quoted as well as 3.20c. Two hundred tons of reinforcing mesh for roadwork has been placed and an addition to a furniture factory requiring between 50 and 75 tons was placed. A local fabricator has taken a 100-ton contract for St. Francis College, Athol Springs. Warehouse business keeps up fairly well for the season and demand is evenly distributed for all the commodities.

Warehouse prices are being quoted as follows: Steel bars, 3.25c.; steel shapes, 3.35c.; steel plates, 3.35c.; No. 10 blue annealed sheets, 3.80c.; No. 28 black sheets, 4.75c.; No. 28 galvanized, 5.45c.; cold rolled shapes, 4.40c.; cold rolled rounds, 3.95c.; wire nails, 4c.; black wire, 4.05c.

Old Material.—Buying here has almost entirely dropped off. Weirton and the Valley are offering \$18.50 for heavy melting steel and \$17.50 for hydraulic compressed sheets, but little of this material is going out on this buying. Cleveland and Pittsburgh prove to be ready markets for turnings and borings and a sale was made at Canton, Ohio. Very few turnings and borings are appearing. An East Buffalo consumer is still buying stove plate.

We quote prices f.o.b. gross ton, Buffalo, as follows:

Heavy melting steel	\$16.50 to \$17.00
Low phosphorus	18.50 to 19.50
No. 1 railroad wrought	14.00 to 14.50
Car wheels	16.00 to 16.50
Machine shop turnings	11.00 to 11.50
Cast iron borings	11.00 to 11.50
No. 1 busheling	15.00 to 15.50
Stove plate	15.25
Grate bars	14.25 to 14.75
Bundled sheets	15.00 to 15.50
Hydraulic compressed	14.50
No. 1 machinery cast	16.50 to 17.00
Railroad malleable	17.00 to 17.50
No. 1 cast scrap	16.50 to 17.00
Iron axles	26.00 to 27.00
Steel axles	17.00 to 17.50

Philadelphia

Possible Effect of British and American Coal Strikes Watched

PHILADELPHIA, July 28.—If the threatened coal strike in England, scheduled for the end of the week, should become a fact its effect upon the American iron and steel industry, particularly on coke and pig iron, is regarded as likely to be important. On the occasion of the last suspension in the British mines large orders for coal were placed in the United States and the effect on coal and coke prices was marked. This in turn was reflected in the pig iron market. More than a month will elapse before the threatened strike in the American anthracite mines occurs, if it occurs at all, and this situation is merely being watched with interest, neither buyers nor sellers showing any real concern over the possibilities at this early date.

With July practically over, the iron and steel industry is giving thought also to a possible upturn in business. August is very often a turning point in anticipation of the fall. Rarely, if ever, has the steel trade been more confident. Notwithstanding some unfavorable factors, such as weakness of certain prices, there is scarcely a note of pessimism anywhere. Scrap prices are strong and advancing, perhaps in anticipation of strengthening iron and steel markets. In pig iron there is not quite the same degree of confidence as in steel, the menace of foreign competition hanging over the market like a cloud.

The most significant action of the week in regard to prices was the decision of one or two Eastern plate mills to alter their quotations so as to name 1.80c. and 1.85c., Pittsburgh, on the more desirable business. While these prices have been obtainable in certain instances they have not been common.

Pig Iron.—Eastern Pennsylvania furnaces have been making a real effort to get their prices up to a minimum of \$20.50, furnace, on the base grade, No. 2 plain, but they have not wholly succeeded in this, although a good share of the past week's business, totaling several thousand tons, was at the \$20.50 price. A part of the No. 2 X iron sold was at \$20.75, furnace, but the most of it went at \$21. One furnace, which recently advanced its prices to \$20.50 for No. 2 plain and to \$21 for No. 2 X has been obliged in some cases to drop 50c. a ton below these prices to meet competition, so it is evident that the advance has not gone into effect all around. There is no business of outstanding importance, but the outlook is somewhat better in that more inquiry for fourth quarter is appearing. Indian iron continues to be quoted at \$20 to \$20.25, c.i.f., duty paid, Philadelphia, the higher figure sometimes applying on iron equivalent to No. 2 X.

The following quotations are, with the exception of those on low phosphorus iron, for delivery at Philadelphia and include freight rate varying from 76c. to \$1.63 per gross ton:

East. Pa. No. 2 plain, 1.75 to 2.25 sil.	\$20.76 to \$21.63
East. Pa. 2X, 2.25 to 2.75 sil.	21.26 to 22.13
East. Pa. No. 1X.	21.76 to 22.63
Virginia No. 2 plain, 1.75 to 2.25 sil.	28.67 to 29.17
Virginia No. 2X, 2.25 to 2.75 sil.	29.17 to 29.67
Basic delivery eastern Pa.	21.50 to 22.00
Gray forge	21.50 to 22.00
Malleable	22.00 to 22.50
Standard low phos. (f.o.b. furnace)	22.00 to 23.00
Copper bearing low phos. (f.o.b. furnace)	25.00 to 25.50

Ferroalloys.—A moderate volume of business in ferromanganese is being done. The price remains at \$115, both for foreign and domestic.

Billets.—Nominally billets remain at \$35, Pittsburgh, for rerolling quality and at \$40 for forging quality. One mill, anxious for desirable rollings, would shade this price if the business were attractive enough.

Plates.—An Eastern plate mill which has been holding firmly to 1.90c., Pittsburgh, a few days ago decided to take care of some of its more important trade at 1.80c. and 1.85c., Pittsburgh. At least one other mill has taken like action, and the market may

now be quoted at 1.80c. to 1.90c., the latter price applying usually on small lots. The volume of business throughout July has been fairly satisfactory for midsummer, most of the Eastern mills maintaining operations at about the rate of last month.

Structural Material.—There is a dearth of important building work in Philadelphia, but fabricators have a fair amount of business booked. Shapes are easier in price, 1.80c., Pittsburgh, now being a more common quotation, though 1.90c. is the minimum of some mills. An Eastern mill which advanced its quotation to 2c., Pittsburgh, has dropped back to 1.90c. after losing considerable business.

Bars.—No one questions the strength of soft steel bars, which are being sold at 2c., Pittsburgh. Buyers in this district, it is stated, do not question this price and it is freely paid. The demand is fairly good. Business in bar iron has picked up a bit. The price remains at 2.22c., Philadelphia.

Sheets.—Sheet mills have not been wholly successful in advancing prices of black and blue annealed sheets, but galvanized sheets are firmly well established at 4.20c. On black 3.10c. is the ruling price, though many mills are trying to get 3.15c. On blue annealed 2.25c. has not disappeared, but 2.30c. is being paid more frequently.

Warehouse Business.—Demand for steel out of stock continues in fairly good volume, but prices are unsatisfactory from the standpoint of the warehouses. We quote for local delivery as follows:

Soft steel bars and small shapes, 2.90c.; iron bars (except bands), 2.90c.; round edge iron, 3.50c.; round edge steel, iron finished, 1½ x ½ in., 3.50c.; round edge steel planished, 4.30c.; tank steel plates, ¼ in. and heavier, 2.90c.; tank steel plates, ⅝ in., 3.05c. to 3.10c.; blue annealed steel sheets, No. 10 gage, 3.35c.; black sheets, No. 28 gage, 4.35c.; galvanized sheets, No. 28 gage, 5.45c.; square, twisted and deformed steel bars, 2.55c.; structural shapes, 2.80c.; diamond pattern plates, ¼ in., 5.30c.; ½ in., 5.50c.; spring steel, 5c.; rounds and hexagons, cold-rolled steel, 4c.; squares and flats, cold-rolled steel, 4.50c.; steel hoops, 4c. base; steel bands, No. 12 gage to ⅝ in., inclusive, 3.75c.; rails, 3.20c.; tool steel, 8.50c.; Norway iron, 6.50c.

Imports.—The only foreign pig iron arriving last week was 752 tons from India. Belgium sent 249 tons of structural steel and 20 tons of steel bars came in from Luxembourg.

Old Material.—Considerable strength in scrap prices has developed within the past week. Advances have occurred on limited buying and it is freely predicted that the market would shoot up rapidly if real buying should take place. Brokers are paying \$16 for No. 1 steel for delivery at Bethlehem and this is the lowest price offered anywhere in the East. A consumer near Philadelphia has paid \$17, so we quote this grade from \$16 to \$17. Other grades have advanced from 50c. to \$1 a ton.

We quote for delivery, consuming points in this district, as follows:

No. 1 heavy melting steel	\$16.00 to \$17.00
Scrap rails	16.00 to 17.00
Steel rails for rolling	17.50 to 18.00
No. 1 low phos. heavy 0.04 and under	21.00 to 21.50
Couplers and knuckles	20.50 to 21.00
Rolled steel wheels	20.50 to 21.00
Cast iron car wheels	18.00 to 18.50
No. 1 railroad wrought	17.50 to 18.50
No. 1 yard wrought	17.00 to 17.50
No. 1 forge fire	15.00 to 15.50
Bundled sheets (for steel works)	13.50 to 14.00
Mixed borings and turnings (for blast furnace use)	12.00 to 13.00
Machine shop turnings (for steel works use)	13.50 to 14.00
Machine shop turnings (for rolling mill use)	13.50 to 14.00
Heavy axle turnings (or equivalent)	15.00 to 16.00
Cast borings (for steel works and rolling mill)	14.00
Cast borings (for chemical plant)	16.00 to 16.50
No. 1 cast	18.00 to 18.50
Heavy breakable cast (for steel plants)	17.00
Railroad grate bars	14.00 to 14.50
Stove plate (for steel plant use)	14.00 to 14.50
Wrought iron and soft steel pipes and tubes (new specifications)	16.50
Shafting	23.50 to 24.50
Steel axles	23.50 to 24.50

Cleveland

Inquiries for Pig Iron for Next Year— Expansion in Steel Demand

CLEVELAND, July 28.—Some of the automobile companies and parts manufacturers have inquiries out for steel bars covering their requirements for the remainder of the year and further efforts have been made to secure price concessions. Some buyers are also trying to secure a lower price on nails, wire and some other products but apparently without success. Mills continue to get a fair volume of orders but these are generally limited to small lots. The automotive industry is still placing orders quite freely for sheets, light plates and strip steel but is not buying very far ahead. The volume of business in this territory in July shows a gain of about 10 per cent over June and during the previous month there was a fair gain over May. Steel bars are holding firmly to 2c., Pittsburgh. On structural material no shading of the 2c. price is reported. The demand for plates shows a slight gain. The price in this territory is well maintained at 1.90c., Pittsburgh, although there are reports that this has been shaded by a mill that had a freight advantage. A Canadian order for 1500 tons of tank plates is reported to have been placed at about 1.80c. Structural awards during the week included 2200 tons for a bridge at Bellaire, Ohio, and 1050 tons for a bank building at Lima, Ohio.

Pig Iron.—Some activity has developed in foundry iron for the fourth quarter. Quite a number of consumers who had previously bought only for the third quarter covered for their fourth quarter requirements during the week. A portion of this business came from the Cleveland foundries. Some inquiry has also come out for foundry iron for next year from consumers that are taking contracts for castings and wish to cover for their iron requirements. One of these is for 3500 tons for the first half and another for 1000 tons for the first quarter. Furnaces expect to quote on these inquiries. One interest during the week sold 15,000 tons of foundry and malleable iron, including a 2500-ton and a 2000-ton lot of the former grade for the fourth quarter, and has inquiries pending for several thousand tons. There is little change in the price situation. One Lake furnace is holding to \$19 for foundry iron, which now is the ruling price in the Michigan territory. In the Valley district \$18.50 is being well maintained and that is the Cleveland price for outside shipment. For local delivery Cleveland furnaces quote foundry and malleable grades at \$19.50 at furnace. Low phosphorus iron is quiet and lacks firmness. A good inquiry would bring a \$27.50 price.

Quotations below, except on basic and low phosphorus iron, are delivered Cleveland, and for local iron include a 50c. switching charge. Ohio silvery and Southern iron prices are based on a \$3.02 freight rate from Jackson and \$6 from Birmingham:

Basic, Valley furnace.....	\$18.00
N'th'n No. 2 fdy., sil. 1.75 to 2.25.....	20.00
Southern fdy., sil. 1.75 to 2.25.....	\$23.51 to 26.01
Malleable.....	20.00
Ohio silvery, 8 per cent.....	29.02
Standard low phos., Valley furnace 27.50 to.....	28.00

Alloy Steel.—New demand from the automotive industry has fallen off and mills are catching up on deliveries. One Ohio plant which recently was filled up for eight weeks can now make shipments in from three to four weeks. Prices are holding to the published schedule.

Iron Ore.—While some small lot sales are being made, the market generally is quiet. Some of the blast furnaces have not yet purchased enough ore to carry them through the winter and are expected to come in the market during the fall.

Fluorspar.—Low prices on fluorspar have stimulated buying and there has been considerable activity the past week in last half contracts. Production has been sharply curtailed, particularly on lump material, because of the low price and the market now has a firmer tone and No. 2 lump has advanced \$2 a ton. Gravel fluorspar has been offered as low as \$15 per ton, but this price has

been withdrawn and the market appears well established at \$16.

Semi-Finished Steel.—Mills are getting a fair volume of specifications for sheet bars, but the only new business reported is the placing of 1000 tons for August shipment by a northern Ohio mill, which was unable to secure a concession from the \$35 price. A local mill quotes sheet bars at \$35, Youngstown, for Cleveland delivery and \$35, Cleveland, for outside shipment.

Sheets.—The firm stand taken by most mills on prices has made it increasingly difficult to purchase sheets below the regular quotations. Black sheets are not so strong as other grades and these can still be bought at 3.10c., although a large share of the business is being placed at 3.15c. Galvanized sheets are firm at 4.20c., and most of the mills are holding to 2.30c. on blue annealed sheets, but 2.25c. has not disappeared.

Strip Steel.—A maker of cold-rolled strip is trying to secure a price concession on an inquiry for 2000 tons of hot-rolled strip steel, but the market is firm at 2.20c. for wide strip and 2.40c. for narrow material. Cold-rolled strip is firm at 3.75c.

Bolts, Nuts and Rivets.—The demand for bolts and nuts on contracts continues good but there is not much new business. Prices are firm. The rivet market is dull and specifications are light. Concessions of \$2 a ton from the \$2.60 price are rather common. Weakness in small rivets continues.

Reinforcing Bars.—The demand has quieted down. Mills are getting a fair volume of small lots, but no large orders are coming out. Mills are more in need of business than they have been and competition is unusually keen. Rail steel bars are weaker. These are quoted at 1.75c. for a good order and 1.80c. for a small lot.

Warehouse Business.—The demand for steel out of warehouse is fair, showing some gains over June. Regular prices are holding better than they have recently.

Jobbers quote steel bars, 3.10c.; plates and structural shapes, 3.20c.; No. 28 black sheets, 3.90c.; No. 28 galvanized sheets, 5.10c.; No. 10 blue annealed sheets, 3.10c.; cold-rolled rounds and hexagons, 3.80c.; flats and squares, 4.30c.; hoops and bands, 3.85c.; No. 9 annealed wire, \$3 per 100 lb.; No. 9 galvanized wire, \$3.45 per 100 lb.; common wire nails, \$3 base per 100 lb.

Coke.—New demand for foundry coke is very light as most foundries are under contract. Prices are unchanged at \$4 to \$5 for Connellsville foundry coke and \$6.50 at oven for Ohio by-product coke.

Old Material.—Prices have advanced about 50c. a ton on blast furnace grades for which there is fair demand from dealers to fill orders with local furnaces. Dealers are paying up to \$14.25 delivered for borings and turnings. No purchases of either steel making or blast furnace scrap are being made by consumers in this territory. However, a West Virginian consumer is reported to have purchased 20,000 tons of heavy melting steel and compressed sheet steel scrap, paying \$18.50 for the former and \$17.50 for the latter. In the absence of buying by consumers in this territory the market is notably firm.

Detroit automobile builders have issued August scrap lists aggregating over 20,000 tons, largely in borings, turnings and compressed steel, bids on which have already been taken or will be received this week. The larger lists include Dodge Brothers, 6800 tons; Chrysler Motor Corporation, 2800 tons; Buick Motor Car Co., 5000 tons, and Hudson Motor Car Co., 3200 tons.

We quote dealers' prices f.o.b. Cleveland per gross ton:

Heavy melting steel.....	\$16.00 to \$16.50
Rails for rolling.....	15.50 to 16.00
Rails under 3 ft.....	18.50 to 19.00
Low phosphorus melting.....	17.50 to 18.00
Cast iron borings.....	13.50 to 13.75
Machine shop turnings.....	13.50 to 13.75
Mixed borings and short turnings.....	13.50 to 13.75
Compressed sheet steel.....	14.00 to 14.50
Railroad wrought.....	12.00 to 12.25
Railroad malleable.....	17.75 to 18.00
Light bundled sheet stampings.....	11.00 to 11.50
Steel axle turnings.....	14.50 to 15.00
No. 1 cast.....	17.75 to 18.00
No. 1 busheling.....	13.50 to 13.75
Drop forge flashings.....	12.00 to 12.50
Railroad grate bars.....	13.25 to 13.50
Stove plate.....	13.25 to 13.50
Pipes and flues.....	10.00 to 10.25

RAILROAD EQUIPMENT

Orders for Cars Few and Small—25 Locomotives Bought

The most important railroad equipment business of the week was an order for 25 locomotives divided among three companies by the Texas & Pacific. Cars ordered numbered 360, of which a good many were mine cars. A few thousand cars are pending, and it is expected that orders soon will be placed.

The Texas & Pacific Railroad has ordered 25 locomotives, of which 10 will be built by the Lima Locomotive Co., 10 by the Baldwin Locomotive Works and 5 by the American Locomotive Co. It is also expected to place orders this week for 750 gondola cars.

The Pennsylvania Salt Mfg. Co. has ordered 5 tank cars from the American Car & Foundry Co.

Repairs to 80 tank cars owned by the U. S. Industrial Alcohol Co. will be made by the American Car & Foundry Co.

The Missouri Portland Cement Co. has ordered 10 50-ton steel hopper cars from the American Car & Foundry Co.

The Lehigh & Wyoming Valley Coal Co. and the Hazelbrook Coal Co. have each ordered 25 mine cars from the American Car & Foundry Co.

The Wabash Railroad has bought 12 box cars from the American Car & Foundry Co.

The Upper Merion & Plymouth Railroad, owned by the Alan Wood Iron & Steel Co., has contracted with the American Car & Foundry Co. for the repair of 11 steel hopper cars.

The Missouri-Kansas-Texas Railroad is inquiring for 1000 box cars.

The Central of Georgia is expected to take action this week on its inquiry for 1000 box cars.

The Fruit Growers Express has placed 400 steel underframes with the Pressed Steel Car Co. to be built by that company's subsidiary, the Western Steel Car & Foundry Co.

The Santa Fe is inquiring for 4 cafe observation cars.

The Southern Pacific is rebuilding 500 freight cars in its Sacramento shops.

The Lehigh & New England is inquiring for repairs to 600 hopper cars.

The Cuban Dominican Sugar Co. has placed 217 30-ton cane cars with the Magor Car Corporation.

The Andes Copper Mining Co. has awarded 66 40-ton ore cars to the Magor Car Corporation.

Further Advances in Scrap in Detroit District

DETROIT, July 28.—Further advances have been registered during the past week in this district on scrap, with flashings heading the list at a high point of \$12 and blast furnace materials showing a general 25c. increase. The recent large purchase of the United Alloys Corporation has further strengthened the market in this district and the low stocks of melters has worked to the benefit of producers in that it has necessitated frequent purchases.

The following prices are quoted on a gross ton basis f.o.b. producers' yards, excepting stove plate, No. 1 machinery cast and automobile cast, which are quoted on a net ton basis:

Heavy melting and shoveling steel	\$13.50 to \$14.00
Borings and short turnings.....	10.75 to 11.25
Long turnings	10.50 to 11.00
No. 1 machinery cast	15.00 to 16.00
Automobile cast.....	21.00 to 22.00
Hydraulic compressed	12.50 to 13.00
Stove plate	12.50 to 13.00
No. 1 busheling.....	12.50 to 13.00
Sheet clippings	8.75 to 9.25
Flashings	11.50 to 12.00

Railroad Orders for Machine Tools

The Nickel Plate Railroad has placed orders with the Niles-Bement-Pond Co. for a No. 3 axle lathe and a 36-44-in. side-head boring mill. This company has also booked a 48-in. car wheel borer from the Atchison, Topeka & Santa Fe Railroad. Purchases of the Mobile & Ohio Railroad from Niles-Bement-Pond Co. include a 48 x 48-in. x 18-ft. reversing motor-driven planer, a 36 x 36-in. x 12-ft. planer, a heavy car wheel lathe and a Niles No. 2 bending roll.

NATIONAL STANDARDS

Progress Reflected in 1925 Year Book of American Engineering Standards Committee

National standardization has possibilities of saving the nation hundreds of millions of dollars annually, according to C. E. Skinner, chairman of the American Engineering Standards Committee. The automobile industry is cited as one of the best illustrations of the benefits of standardization, it being estimated that savings amounting to \$750,000,000 a year are made by the general adoption of standards. It is the object of the standards committee to make possible comparable savings in all lines of industry, said Mr. Skinner.

The work undertaken by the American Engineering Standards Committee is of recognized importance. A review of its 1925 year book, recently published, reflects substantial progress in the increased number of projects listed. The committee, it should be noted, serves as a national clearing house for engineering and industrial standardization, acts as the official channel of cooperation in international standardization and provides an information service on engineering and industrial standardization matters. It is the agency through which industrial standardization in the United States is passing from the stage of standardization by associations, societies and governmental agencies to standardization on a national scale. Officially participating in the work of the committee are 245 national trade, technical, industrial and governmental organizations. Of these more than 160 are trade organizations.

The year book shows that 60 standards have been approved and work on 100 other projects is under way. A wide range of activities is represented in the technical projects, which include 26 in mechanical engineering, 32 in civil engineering and building trades, four in automotive, one in shipbuilding, nine in ferrous metallurgy, 14 in non-ferrous metallurgy and 16 in mining. Standards for screw threads and fire hose couplings, cold finished shafting and for specifications for steel forgings, brass ingot metal and solder are among the projects completed during the past year. Projects under way include the unification of specifications for cast iron pipe, specifications for zinc coating of iron and steel, tolerances and allowances for machined fits in interchangeable manufacture, codes for automobile brakes and brake testing, and safety codes which are of interest to a number of different industries. Of special interest is the development of standardization in the mining field, where until recently little has been done.

Cooperation with the Federal government is established, the Bureau of Standards and the Federal Specifications Board jointly maintaining a liaison office with the committee. During the past year the committee circulated more than 100 specifications of the board for criticism in order to determine their acceptability in industry before official adoption by the government. The committee has assisted the Department of Commerce in the preparation of the "Dictionary of Specifications" which will soon be published and which will contain a classified index of some 25,000 specifications, covering approximately 600 commodities. Close relations are maintained between the Division of Simplified Practice and the committee.

Active cooperation with 19 foreign standardizing bodies is maintained. One of the services of the committee is supplying American manufacturers with foreign standards, recognized trade designations, etc., which information permits of submitting bids by cable without misunderstanding or loss of time.

At a conference of industrial executives held March 30, an advisory committee of industrial executives was appointed. The members include J. A. Farrell, president of the United States Steel Corporation; Gerard Swope, president of the General Electric Co.; L. F. Loree, president of the Delaware & Hudson Co.

P. G. Agnew, 29 West Thirty-ninth Street, New York, is secretary of the American Engineering Standards Committee.

Prices of Finished Iron and Steel Products (Carload Lots)

Tank Plates

F.o.b. Pittsburgh mill, base, per lb.	1.90c.
F.o.b. Chicago, base, per lb.	2.10c.

Structural Shapes

F.o.b. Pittsburgh mills, base, per lb.	2c.
F.o.b. Chicago, base, per lb.	2.10c.

Iron and Steel Bars

Soft steel bars f.o.b. P'gh mills, base, per lb.	2c.
Soft steel bars f.o.b. Chicago, base, per lb.	2.10c.
Reinforcing steel bars f.o.b. P'gh mills, base, per lb.	2c.
Rail steel bars, f.o.b. Chicago and f.o.b. Chicago district mills, base, per lb.	2.00c.
Common iron bars, f.o.b. Chicago, base, per lb.	1.90c. to 2.00c.
Refined iron bars, f.o.b. P'gh mills, base, per lb.	3.00c.
Common iron bars, eastern Pa. mill, base, per lb.	2.10c.

Hot-Rolled Flats

Hoops, base, 6 in. and narrower, per lb., Pittsburgh.	2.40c.
Bands, base, 6 in. and narrower, per lb., Pittsburgh.	2.40c.
Strips, 6 in. and narrower, base, per lb., Pittsburgh.	2.40c.
Strips, 6 in. and wider, base, per lb., Pittsburgh.	2.20c.
Strips, 6 in. and narrower, Chicago.	2.40c. to 2.50c.
Strips, wider than 6 in., Chicago.	2.30c. to 2.40c.

Cold-Finished Steel

Screw stock and shafting, f.o.b. P'gh mills, base, per lb.	2.60c.
Screw stock and shafting, f.o.b. Chicago, base, per lb.	2.60c.
Screw stock, base, per lb., Cleveland.	2.65c.
Shafting, ground, f.o.b. mill, base, per lb.	3.00c.
Strips, f.o.b. P'gh mills, base, per lb.	3.75c.
Strips, f.o.b. Cleveland mills, base, per lb.	3.75c.
Strips, f.o.b. delivered Chicago, base, per lb.	3.90c.
Strips, f.o.b. Worcester mills, base, per lb.	3.90c.

Wire Products

(To jobbers in car lots f.o.b. Pittsburgh and Cleveland)	
Nails, base, per keg.	\$2.65
Galvanized nails, 1-in. and longer, base plus.	2.00
Galvanized nails, shorter than 1 in., base plus.	2.25
Bright plain wire, base, No. 9 gage, per 100 lb.	2.50
Annealed fence wire, base, per 100 lb.	2.65
Spring wire, base, per 100 lb.	3.50
Galvanized wire, No. 9, base, per 100 lb.	3.10
Galvanized barbed, base, per 100 lb.	3.35
Galvanized staples, base, per keg.	3.35
Painted barbed wire, base, per 100 lb.	3.10
Polished staples, base, per keg.	3.10
Cement coated nails, base, per count keg.	1.85
*Bale ties, carloads, to jobbers.	.75, 15 and 5 per cent off list
*Bale ties, carloads, to retailers.	.75, 10 and 6 per cent off list
Woven wire fence, base, per net ton to retailers.	\$3.65
Chicago district mill and delivered Chicago prices are \$1 per ton above the foregoing. Birmingham mill prices \$3 a ton higher; Worcester, Mass., mill \$3 a ton higher on production of that plant; and Duluth, Minn., mills \$2 a ton higher; Anderson, Ind., \$1 higher.	

*F.o.b. Cleveland.

Sheets

Blue Annealed	
(base) per lb.	
Nos. 9 and 10, f.o.b. Pittsburgh.	2.30c.
Nos. 9 and 10 (base) per lb., f.o.b. Chicago dist. mills.	2.40c.
Box Annealed, One Pass Cold Rolled	
No. 28 (base) per lb., f.o.b. Pittsburgh.	3.15c.
No. 28 (base) per lb., f.o.b. Chicago dist. mill.	3.30c. to 3.35c.
Galvanized	
No. 28 (base) per lb., f.o.b. Pittsburgh.	4.20c.
No. 28 (base) per lb., f.o.b. Chicago dist. mill.	4.30c.
Tin-Mill Black Plate	
No. 28 (base) per lb., f.o.b. Pittsburgh.	3.15c.
No. 28 (base) per lb., f.o.b. Chicago dist. mill.	3.25c. to 3.40c.
Automobile Body Sheets	
No. 22 (base) per lb., f.o.b. Pittsburgh.	4.15c. to 4.25c.
Long Terns	
No. 28 (base) 8-lb. coating, per lb., f.o.b. mill.	4.60c. to 4.75c.

Tin Plate

Standard cokes, per base box, f.o.b. Pittsburgh district mills	\$5.50
Standard cokes, per base box f.o.b. Chicago district mills	5.60
Standard cokes, per base box f.o.b. Elwood, Ind.	5.60

Terne Plate

(F.o.b. Morgantown or Pittsburgh)	
(Per package, 20 x 28 in.)	
8-lb. coating, 100 lb. base	\$11.20
8-lb. coating I. C.	11.50
15-lb. coating I. C.	14.35
20-lb. coating I. C.	15.50
25-lb. coating I. C.	17.00
30-lb. coating I. C.	18.35
40-lb. coating I. C.	20.35

Rivets

Large, f.o.b. P'gh and Cleveland mills, base, per 100 lb.	\$2.40 to \$2.50
Large, f.o.b. Chicago, base, per 100 lb.	2.60
Small, f.o.b. Pittsburgh.	.70 and 10 per cent off list
Small, Cleveland	.70 and 10 to 70, 10 and 10-per cent off list
Small, Chicago	.70, 10 and 5 per cent off list

Rails and Track Equipment

(F.o.b.)	
Rails, standard, per gross ton	\$43.00
Rails, light, billet, base, per lb.	1.60c. to 1.70c.
Rails, light rail steel, base, per lb.	1.50c. to 1.60c.
Spikes, $\frac{3}{4}$ in. and larger, base, per 100 lb.	\$2.80 to \$3.00
Spikes, $\frac{1}{2}$ in. and smaller, base, per 100 lb.	3.00 to 3.25
Spikes, boat and barge, base, per 100 lb.	3.25
Track bolts, all sizes, base, per 100 lb.	3.90 to 4.25
Tie plates, per 100 lb.	2.35 to 2.40
Angle bars, base, per 100 lb.	2.75

Welded Pipe

(F.o.b. Pittsburgh district mills)	
Butt Weld	
Inches	Steel Black Galv.
$\frac{1}{4}$	45 19 $\frac{1}{2}$
$\frac{1}{2}$	51 25 $\frac{1}{2}$
$\frac{3}{4}$	56 42 $\frac{1}{2}$
1	60 48 $\frac{1}{2}$
1 to 3	62 50 $\frac{1}{2}$
Lap Weld	
2	55 43 $\frac{1}{2}$
$2\frac{1}{2}$ to 6	59 47 $\frac{1}{2}$
7 and 8	56 43 $\frac{1}{2}$
9 and 10	54 41 $\frac{1}{2}$
11 and 12	53 40 $\frac{1}{2}$
Butt Weld, extra strong, plain ends	
$\frac{1}{4}$	41 24 $\frac{1}{2}$
$\frac{1}{2}$	47 30 $\frac{1}{2}$
$\frac{3}{4}$	53 42 $\frac{1}{2}$
1	58 47 $\frac{1}{2}$
1 to 1 $\frac{1}{2}$	60 49 $\frac{1}{2}$
Lap Weld, extra strong, plain ends	
2	53 42 $\frac{1}{2}$
$2\frac{1}{2}$ to 4	57 46 $\frac{1}{2}$
$\frac{1}{2}$ to 6	56 45 $\frac{1}{2}$
$\frac{1}{2}$ to 8	52 39 $\frac{1}{2}$
9 and 10	45 32 $\frac{1}{2}$
11 and 12	44 31 $\frac{1}{2}$
Inches	Iron Black Galv.
$\frac{1}{4}$ to $\frac{3}{8}$	+11 +39
$\frac{1}{2}$	22 2
$\frac{3}{4}$	28 11
1 to 1 $\frac{1}{2}$	30 13
2	26 7
$2\frac{1}{2}$	26 11
3 to 6	28 13
7 to 12	26 11
2	26 7
$2\frac{1}{2}$ to 4	29 15
$\frac{1}{2}$ to 6	28 14
$\frac{1}{2}$ to 8	21 7
9 to 12	16 2

To the large jobbing trade the above discounts on steel pipe are increased (on black) by one point, with supplementary discount of 5 per cent and (on galvanized) by 1 $\frac{1}{2}$ points, with supplementary discount of 5 per cent. On iron pipe, both black and galvanized, the preferentials to large jobbers are 1, 5 and 2 $\frac{1}{2}$ per cent beyond the above discount.

NOTE—The above discounts on steel pipe also apply at Lorain, Ohio. Chicago district mills have a base 2 points less. Chicago delivered base 2 $\frac{1}{2}$ points less. Freight is figured from Pittsburgh, Lorain, Ohio, and Chicago district mills, the billing being from the point having the lowest rate to destination.

Boiler Tubes

(F.o.b. Pittsburgh)	
Lap Welded Steel	
2 to 2 $\frac{1}{4}$ in.	27
$2\frac{1}{2}$ to 2 $\frac{3}{4}$ in.	37
3 in.	40
$3\frac{1}{4}$ to 3 $\frac{1}{2}$ in.	42 $\frac{1}{2}$
4 to 13 in.	46
Charcoal Iron	
1 $\frac{1}{2}$ in.	+18
1 $\frac{3}{4}$ to 1 $\frac{1}{2}$ in.	+8
2 to 2 $\frac{1}{4}$ in.	—2
$2\frac{1}{2}$ to 3 in.	—7
$3\frac{1}{4}$ to 4 $\frac{1}{2}$ in.	—9
Beyond the above discounts, 5 fives extra are given on lap welded steel tubes and 2 tens on charcoal iron tubes.	
Standard Commercial Seamless Boiler Tubes	
Cold Drawn	
1 in.	60
1 $\frac{1}{4}$ and 1 $\frac{1}{2}$ in.	52
1 $\frac{3}{4}$ in.	36
2 and 2 $\frac{1}{4}$ in.	31
$2\frac{1}{2}$ and 2 $\frac{3}{4}$ in.	39
3 in.	45
$3\frac{1}{4}$ to 3 $\frac{1}{2}$ in.	47
4 in.	50
4 $\frac{1}{2}$, 5 and 6 in.	45
Hot-Rolled	
2 and 2 $\frac{1}{4}$ in.	34
$2\frac{1}{2}$ and 2 $\frac{3}{4}$ in.	42
3 in.	48
$3\frac{1}{4}$ and 3 $\frac{1}{2}$ in.	50
4 in.	53
4 $\frac{1}{2}$, 5 and 6 in.	48

Less carloads, 4 points less. Add \$8 per net ton for more than four gages heavier than standard. No extra for lengths up to and including 24 ft. Sizes smaller than 1 in. and lighter than standard gage to be held at mechanical tube list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

Seamless Mechanical Tubing (Old List)

Carbon under 0.30 base	86 to 88 per cent off list
Carbon 0.30 to 0.40 base	84 to 86 per cent off list
Plus usual differentials and extra for cutting. Warehouse discounts range higher.	

Seamless Mechanical Tubing (New List)

Carbon 0.10 to 0.30 base	55 per cent off list
Carbon 0.30 to 0.40 base	50 per cent off list
Plus differentials for lengths over 18 ft. and for commercially exact lengths.	

Prices of Iron and Steel Products and Raw Materials

Ores

Lake Superior Ores, Delivered Lower Lake Ports

Old range Bessemer, 51.50 per cent iron.....	\$4.55
Old range non-Bessemer, 51½ per cent iron.....	4.40
Mesaba Bessemer, 51.50 per cent iron.....	4.40
Mesaba non-Bessemer, 51.50 per cent iron.....	4.25
High phosphorus iron, 51.50 per cent.....	4.15

Foreign Ore, per Unit, c.i.f. Philadelphia or Baltimore

Iron ore, low phos., copper free, 55 to 58 per cent iron in dry Spanish or Algerian.....	9.50c. to 10c.
Iron ore, Swedish, average 66 per cent iron.....	9.50c.
Manganese ore, washed, 51 per cent manganese, from the Caucasus.....	45c.
Manganese ore, Brazilian or Indian, nominal.....	42c.
Tungsten ore, high grade, per unit, in 60 per cent concentrates.....	\$11.00 to \$11.50
Chrome ore, Indian basic, 48 per cent Cr ₂ O ₃ , crude, per ton, c.i.f., Atlantic seaboard.....	20.00 to 24.00
Molybdenum ore, 85 per cent concentrates, per lb. of MoS ₃ , New York.....	65c. to 70c.

Coke and Coal

(Per Net Ton)

Furnace coke, f.o.b. Connellsville prompt.....	\$2.90
Foundry coke, f.o.b. Connellsville prompt.....	3.75 to 4.25
Mine run steam coal, f.o.b. W. Pa. mines.....	1.50 to 2.00
Mine run coking coal, f.o.b. W. Pa. mines.....	1.50 to 1.75
Mine run gas coal, f.o.b. W. Pa. mines.....	2.00 to 2.25
Steam slack, f.o.b. W. Pa. mines.....	1.35 to 1.40
Gas slack, f.o.b. W. Pa. mines.....	1.40 to 1.60

Ferroalloys

Ferromanganese, domestic, 80 per cent, furnace, or seaboard, per ton.....	\$115.00
Ferromanganese, foreign, 80 per cent, f.o.b. Atlantic port, duty paid.....	115.00
Ferrosilicon, 50 per cent, delivered.....	82.50 to 85.00
Ferrosilicon, 75 per cent.....	145.00 to 147.50
Ferrotungsten, per lb. contained metal.....	1.00
Ferrochromium, 4 per cent carbon and up, 60 to 70 per cent Cr., per lb. contained Cr. delivered.....	11.50c.
Ferrovanadium, per lb. contained vanadium.....	\$3.50 to \$4.00
Ferrocobaltititanium, 15 to 18 per cent, per net ton.....	200.00

Spiegeleisen, Bessemer Ferrosilicon and Silvery Iron

(Per gross ton furnace unless otherwise stated)

Spiegeleisen, domestic, 19 to 21 per cent.....	\$32.00
Spiegeleisen, domestic, 16 to 19 per cent.....	31.00
Ferrosilicon, Bessemer, 10 per cent, \$33; 11 per cent, \$35; 12 per cent, \$37; electric furnace ferrosilicon, 10 per cent, \$38; furnace with an advance of \$1 per unit for material above 10 per cent.....	
Silvery iron, 6 per cent, \$24; 7 per cent, \$25; 8 per cent, \$25 to \$26; 9 per cent, \$27.50; 10 per cent, \$29; 11 per cent, \$31; 12 per cent, \$33.....	

Fluxes and Refractories

Fluorspar, 85 per cent and over calcium fluoride, not over 5 per cent silica, gravel, per net ton, f.o.b. Illinois and Kentucky mines.....	\$16.00
No. 2 lump, per net ton.....	19.00
Fluorspar, foreign, 85 per cent calcium fluoride, not over 5 per cent silica, c.i.f. Philadelphia, duty paid, per net ton.....	15.00 to 16.00
Fluorspar, No. 1 ground bulk, 95 to 98 per cent calcium fluoride, not over 2½ per cent silica, per net ton, f.o.b. Illinois and Kentucky mines.....	32.50
Per 1000 f.o.b. works:	
Fire Clay:	
Pennsylvania.....	High Duty \$43.00 to \$46.00 Moderate Duty \$40.00 to \$43.00
Maryland.....	48.00 to 50.00 43.00 to 45.00
Ohio.....	43.00 to 46.00 40.00 to 43.00
Kentucky.....	43.00 to 45.00 40.00 to 43.00
Illinois.....	43.00 to 45.00 40.00 to 43.00
Missouri.....	40.00 to 43.00 35.00 to 38.00
Ground fire clay, per ton.....	6.50 to 7.50
Silica Brick:	
Pennsylvania.....	40.00
Chicago.....	49.00
Birmingham.....	54.00
Silica clay, per ton.....	8.00 to 9.00
Magnesite Brick:	
Standard size, per net ton (f.o.b. Baltimore and Chester, Pa.).....	65.00
Grain magnesite, per net ton (f.o.b. Baltimore and Chester, Pa.).....	40.00
Chrome Brick:	
Standard size, per net ton.....	48.00

Bolts and Nuts

(F.o.b. Pittsburgh, Cleveland, Birmingham and Chicago)

Machine bolts, small rolled threads.....	60 and 10 per cent off list
Machine bolts, all sizes, cut threads.....	50, 10 and 10 per cent off list
Carriage bolts, smaller and shorter, rolled threads.....	50, 10 and 10 per cent off list
Carriage bolts, cut threads, all sizes.....	50 and 10 per cent off list
Eagle carriage bolts.....	65 and 10 per cent off list
Lag bolts.....	60, 10 and 10 per cent off list
Plow bolts, Nos. 1, 2 and 3 heads.....	50 and 10 per cent off list

Other style heads 20 per cent extra
Machine bolts, c.p.c. and t. nuts, ½ x 4 in.....

Larger and longer sizes..... 45, 10 and 5 per cent off list
Hot-pressed nuts, blank or tapped, square..... 4c. off list
Hot-pressed nuts, blank or tapped, hexagons..... 4.40c. off list
C.p.c. and t. square or hex. nuts, blank or tapped..... 4.10c. off list
Bolt ends with hot pressed nuts..... 50, 10 and 10 per cent off list
Bolt ends with cold pressed nuts..... 45, 10 and 5 per cent off list
Washers..... 6.10c. to 6c. off list

*F.o.b. Chicago and Pittsburgh.

The discount on machine, carriage and lag bolts is 5 per cent less than above for less than car lots. On hot pressed and cold punched nuts the discount is 25c. less per 100 lb. than quoted above for less than car lots.

(Quoted with freight allowed within zone limits)

Semi-finished hex. nuts:
½ in. and smaller, U. S. S..... 80, 10 and 5 per cent off list
¾ in. and larger, U. S. S..... 75, 10 and 5 per cent off list
Small sizes, S. E. E..... 80, 10, and 5 per cent off list
S. A. E., ½ in. and larger..... 75, 10, 10 and 5 per cent off list
Stove bolts in packages..... 80, 10 and 5 per cent off list
Stove bolts in bulk..... 80, 10, 5 and 2½ per cent off list
Tire bolts..... 50, 10 and 5 per cent off list

Semi-Finished Castellated and Slotted Nuts

(Prices delivered within specified territories)

(To jobbers and consumers in large quantities)

Per 100 Net			Per 100 Net		
S. A. E. U. S. S.			S. A. E. U. S. S.		
¾-in.	\$0.44	\$0.44	¾-in.	\$2.35	\$2.40
1-in. ....	.515	.515	1-in.	3.60	3.60
1½-in. ....	.62	.66	1½-in.	5.65	5.80
2-in. ....	.79	.90	2-in.	8.90	8.90
2½-in.	1.01	1.05	2½-in.	12.60	12.10
3-in.	1.38	1.42	3-in.	18.35	18.35
3½-in.	1.70	1.73	3½-in.	21.00	21.00

Larger sizes—Prices on application.

Cap and Set Screws

Freight allowed within zone limits)

Milled cap screws.....	80, 10 and 5 per cent off list
Milled standard set screws, case hardened.....	80 and 10 per cent off list
Milled headless set screws, cut thread.....	80 and 10 to 80 per cent off list
Upset hex. head cap screws, U. S. S. Thread.....	80, 10, 10 and 5 per cent off list
Upset hex. cap screws, S. A. E. thread.....	80, 10, 10 and 5 per cent off list
Upset set screws.....	80, 10, and 10 per cent off list
Milled studs.....	75 per cent off list

Semi-Finished Steel, f.o.b. Pittsburgh or Youngstown, per gross ton

Rolling billets, 4-in. and over.....	\$35.00
Forging billets, ordinary.....	40.00
Forging billets, guaranteed.....	45.00
Sheet bars.....	35.00
Slabs.....	35.00
Wire rods, common soft, base, No. 5 to ¾-in.....	45.00
Wire rods, common soft, coarser than ¾-in.....	\$2.50 over base
Wire rods, screw stock.....	\$5.00 per ton over base
Wire rods, carbon 0.20 to 0.40.....	3.00 per ton over base
Wire rods, carbon 0.41 to 0.55.....	5.00 per ton over base
Wire rods, carbon 0.56 to 0.75.....	7.50 per ton over base
Wire rods, carbon over 0.75.....	10.00 per ton over base
Wire rods, acid.....	15.00 per ton over base
Skelp, grooved, per lb.....	1.90c.
Skelp, sheared, per lb.....	1.90c.
Skelp, universal, per lb.....	1.90c.

*Chicago mill base is \$46. Cleveland mill base, \$45.

Alloy Steel

(F.o.b. Pittsburgh or mill)

S. A. E. Series Numbers	Bars 100 lb.
2100* (¼% Nickel, 10 to 20 per cent Carbon).....	\$3.00 to \$3.25
2300 (3% Nickel).....	4.50 to 4.75
2500 (5% Nickel).....	6.00 to 6.25
3100 (Nickel Chromium).....	3.50 to 3.65
3200 (Nickel Chromium).....	5.00 to 5.50
3300 (Nickel Chromium).....	7.50 to 7.75
3400 (Nickel Chromium).....	6.50 to 6.75
5100 (Chromium Steel).....	3.50
5200* (Chromium Steel).....	7.50 to 8.00
6100 (Chromium Vanadium bars).....	4.25 to 4.50
6100 (Chromium Vanadium spring steel).....	4.00 to 4.25
9250 (Silicon Manganese spring steel).....	3.50
Carbon Vanadium (0.45 to 0.55 Carbon, 0.15 Vanadium).....	4.25 to 4.50
Nickel Chrome Vanadium (0.60 Nickel, 0.50 Chromium, 0.15 Vanadium).....	4.50
Chromium Molybdenum bars (0.80—1.10 Chromium, 0.25—0.40 Molybdenum).....	4.25
Chromium Molybdenum bars (0.50—0.70 Chromium, 0.15—0.25 Molybdenum).....	3.75
Chromium Molybdenum spring steel (1—1.25 Chromium, 0.30—0.50 Molybdenum).....	4.75 to 5.00

Above prices are for hot-rolled steel bars, forging quality. The ordinary differential for coal drawn bars is 1c. per lb. higher. For billets 4 x 4 to 10 x 10-in. the price for a gross ton is the net price for bars of the same analysis. For billets under 4 x 4-in. down to and including 2½-in. squares, the price is \$5 a gross ton above the 4 x 4 billet price.

*Not S. A. E. specifications, but numbered by manufacturers to conform to S. A. E. system.

NON-FERROUS METALS

The Week's Prices

Cents per Pound for Early Delivery

	Copper, New York		Straits Tin (Spot)		Lead		Zinc	
	Lake	Electrolytic*	New York	New York	St. Louis	New York	New York	St. Louis
July 22,	14.50	14.12½	58.87½	8.35	8.20	7.67½	7.32½	7.32½
23,	14.60	14.12½	58.75	8.35	8.20	7.67½	7.32½	7.32½
24,	14.50	14.12½	58.00	8.40	8.20	7.62½	7.32½	7.32½
25,	14.50	14.12½	58.00	8.45	8.20	7.62½	7.32½	7.32½
26,	14.50	14.12½	57.75	8.50	8.20	7.62½	7.32½	7.32½
27,	14.50	14.12½	57.75	8.50	8.20	7.62½	7.32½	7.32½
28,	14.50	14.12½	58.37½	8.50	8.20	7.65	7.30	7.30

*Refinery quotation; delivered price ½c. higher.

New York

NEW YORK, July 28.

Copper continues firm but demand has slackened. Buying of tin by consumers has been a feature. The lead market is easier, prices holding firm. Zinc is not as active and prices have eased off.

Copper.—The large volume of sales, which has characterized the greater part of the month thus far, has abated and the market is considerably quieter. The position of both consumers and producers is so satisfactory that prices remain quite firm at 14.37½c., delivered, for electrolytic copper and 14.50c. for Lake. Most of the buying has been for August-September delivery and practically nothing has been sold for fourth quarter. It is the belief, however, that more September buying will be necessary. Another factor is the sentimental effect of the threat of the coal strike in England which has affected the price of all metals in that market. This has been particularly noticeable here in export sales. Yesterday a little electrolytic copper was available at 14.25c., delivered, but the quantity was considered so small as not to affect prices in general.

Tin.—The market has been particularly active and consumers have been the chief buyers again this week. Sales for the week ended Friday, July 24, amounted to about 1200 tons. On that day there was a severe break in the London market, due to the coal strike threat, all grades of tin declining £4 12s. 6d. per ton. Other metals were also affected. American consumers came into the market and bought at least 450 tons of relatively cheap tin. Yesterday there was another decline in London of over £1 per ton and American consumers again bought 500 tons. The threat of a coal strike has lowered the London market and American consumers have profited. Today the situation over there looks more favorable and all metals have advanced. Spot standard was quoted today at £258 15s., future standard at £261 12s. 6d. and spot Straits at £265 per ton. The Singapore market was quoted at £264 10s., with sales for the week of 1200 tons, a large volume. The market here today has been quiet and firm with spot Straits tin quoted at 58.37½c., New York. Arrivals thus far this month have been 5785 tons, with 7415 tons reported afloat.

Lead.—The market is easier and quiet. The buying movement which has been prominent most of the month has largely subsided. There is some confusion, however, as to actual market prices which continue firm and high. The leading interest maintains its contract price at 8.20c., New York, at which it is taking orders from its regular customers. In the outside market prices as high as 8.75c. are heard of, but those are usually of a special nature. A reasonable appraisal of the outside market is 8.50c., New York. The leading interest in the West is taking business around 8.20c., St. Louis, which is regarded as the market in that district. A feature of the market is the balance which exists between consumption and production.

Zinc.—Fairly good buying advanced prices of zinc during the week as high as 7.35c., St. Louis, sales having been made on July 22 at a range of 7.32½c. to 7.35c. It is stated that 250 tons was sold at the higher quotation. Since then, due partly to the effect of the

threatened coal strike in England, prices have receded slightly, going as low as 7.27½c., St. Louis. Today the market is again stronger at 7.30c., St. Louis, or 7.65c., New York. The strength of the market has been due to domestic buying, but this has tapered off recently, because of the comfortable position of both producers and consumers. Export business is at present at a low ebb, due to low prices abroad.

Nickel.—Quoted prices on wholesale lots of nickel are unchanged at 34c. for ingot and 35c. for shot, with electrolytic nickel quoted at 38c.

Antimony.—Chinese metal for spot delivery is almost unobtainable, but metal for August arrival is quoted at 17c., New York, duty paid, with September arrival held at 16.25c. to 16.50c. Metal for shipment from China in September-October is quoted at 15.75c.

Aluminum.—Virgin metal, 98 to 99 per cent pure, is quoted at 27c. to 28c. per lb., delivered.

Old Metals.—The market follows virgin metals closely. Demand has slowed down somewhat. Dealers' selling prices are as follows in cents per lb.:

Copper, heavy and crucible	13.75
Copper, heavy and wire	12.75
Copper, light and bottoms	11.25
Heavy machine composition	10.50
Brass, heavy	8.50
Brass, light	7.50
No. 1 red brass or composition turnings	9.50
No. 1 yellow rod brass turnings	9.25
Lead, heavy	7.75
Lead, tea	6.75
Zinc	5.25
Cast aluminum	19.50
Sheet aluminum	19.50

Chicago

JULY 28.—Lead, zinc and antimony have advanced while tin has declined. Lead is said to be very strong, with production practically equal to consumption and stocks in producers' hands almost nil. There has been considerable trading in copper, but mostly for nearby delivery. Tin has declined in sympathy with the London market, which has been adversely affected by the threatened miners' strike. Among the old metals grades of copper have declined, while lead pipe has advanced. We quote, in carload lots: Lake copper, 14.50c.; tin, 58.75c.; lead, 8.40c.; zinc, 7.35c.; in less than carload lots, antimony, 18.25c. On old metals we quote copper wire, crucible shapes and copper clips, 11.25c.; copper bottoms, 9.75c.; red brass, 8.75c.; yellow brass, 7.50c.; lead pipe, 7c.; zinc, 4.25c.; pewter, No. 1, 32c.; tin foil, 40c.; block tin, 45c.; all buying prices for less than carload lots.

Considering Bounties for Indian Iron Industry

WASHINGTON, July 28.—Reexamination of the entire question of bounties on iron and steel produced in India has been begun by the Indian tariff board, and it is expected to recommend to the Government of India that assistance be given the iron and steel industry for another year, according to a cablegram received by the Department of Commerce from Calcutta.

A course in motion study, consisting of lectures and laboratory work, covering a period of 16 weeks beginning with Aug. 31, will be given by Mrs. Frank B. Gilbreth of Frank B. Gilbreth, Inc., 68 Eagle Rock Way, Montclair, N. J. There will be from four to ten students, each sent by his company, thoroughly acquainted with his industry and capable of acquiring the technique of motion study, of teaching it and of making an installation.

Through a stenographic error the statement regarding the extra large plates which are being rolled by the Lukens Steel Co. at Coatesville, Pa., published in THE IRON AGE of July 23, did not give the correct measurements of these plates, which are 384 in. long, instead of 284 in., as stated in the item.

PERSONAL

Noah F. Young has been elected president of the Lumen Bearing Co. by the board of directors, succeeding William H. Barr, who resigned at the last meeting of the stockholders. Mr. Young has been with the company for 19 years, having started as assistant cashier and becoming respectively cashier, assistant treasurer, treasurer and general manager. He is 38 years old and a member of the Greater Buffalo Advertising Club and the Buffalo Athletic Club.



NOAH F. YOUNG

Harry B. Lindsay has been appointed sales manager of the refractories division of the Norton Co., Worcester, Mass. He will take over the work of Charles W. Saxe, who will now devote his whole time to the engineering and production end of the department. Mr. Lindsay graduated from Worcester Polytechnic Institute with the class of 1913, taught electrical engineering at Annapolis for three years, and served in the war as a lieutenant in the radio division of the air service. He was for two years a sales engineer for the Norton Co. and for the past three years has been sales manager of the C. D. Tuska Co., Hartford, Conn.

Edward Busch, who has been connected with Tate Jones & Co., furnace manufacturers, Pittsburgh, for many years, has been appointed district manager of the Hevi-Duty Electric Co., Milwaukee, for the sale of electric furnaces and equipment in the Ohio and Indiana territory, with offices at 879 The Arcade, Cleveland.

William Breeden, manufacturers' representative, 401 Hibernian Building, 408 South Spring Street, Los Angeles, Cal., has become Los Angeles representative of the Sweet's Steel Co., Williamsport, Pa., and the Ohio Nut & Bolt Co., Berea, Ohio.

Augustus A. Bolik, of the engineering department of the Eastman Kodak Co., Rochester, N. Y., has resigned, effective Aug. 1, and will open an office in Cleveland about Oct. 1, acting as a representative of manufacturers in the mechanical industry.

William D. Ferris has resigned his position as works manager of the Shelby Metal Products Co., Shelby, Ohio, to assume the management of the plant of the Frantz Mfg. Co., Sterling, Ill., on Aug. 1.

J. C. Dawes has joined the Pittsburgh sales organization of the International Oxygen Co. and L. W. McCullough, the Toledo sales organization. Mr. Dawes was previously with the Weldcraft Co., Pittsburgh.

Charles F. Chase, New Britain, Conn., chief engineer Berlin Construction Co., Berlin, Conn., has been made president to succeed the late George H. Sage. Mr. Chase has been associated with the company since its inception in 1901.

Julius B. Koehler has been elected president and general manager of the Monitor Furnace Co., Cincinnati. He has been with the company since 1916 and has recently been vice-president. S. C. Bernhardt, vice-president and sales manager, has been elected to the

board of directors to fill the vacancy created by the death of Riffe Pope, formerly president. Mr. Bernhardt has been associated with the company for 13 years.

Otto E. Ewert, formerly consulting engineer at Milwaukee, has been appointed superintendent for the W. F. & John Barnes Co., Rockford, Ill.

Charles J. Brown, superintendent Shoenberger works, American Steel & Wire Co., Pittsburgh, prior to its abandonment and the sale of the land to the Pennsylvania Railroad, now is attached to the company's Cuyahoga works, Cleveland.

H. H. Davis, formerly assistant general manager of sales Molybdenum Co. of America and who previously held the same position with the Pittsburgh Crucible Steel Co., has become associated with the Titusville Forge Co., Titusville, Pa., as assistant to the president.

Alfred P. Dennis, democrat, of Maryland, who has been a member of the Tariff Commission since March 16, last week was appointed vice-chairman by President Coolidge. Mr. Dennis formerly was a special representative of the Department of Commerce and was engaged in investigating conditions in central and eastern Europe.

Obituary

FRANCIS J. LLEWELLYN, western division contracting manager, American Bridge Co., Chicago, in charge of contracting in Chicago and the West, died at Portland, Ore., July 25, at the age of 64. He had been traveling for his health for several months and finally succumbed to heart trouble. He was born in Somersetshire, England, May 22, 1861, was educated at Stony Gate grammar school, Leicester, England, and thereafter was apprenticed to Gimson & Co., engineers, Leicester, England, until 1882. He was designing engineer for the Midland Railway, Carriage & Wagon Co., Shrewsbury, England, for two years, and in 1885 entered the employ of the Gillette, Herzog Mfg. Co., Minneapolis, of which he was vice-president and chief engineer at the time of its sale to the American Bridge Co. in 1900. He then became president of the Koken Iron Works, St. Louis, but returned to the American Bridge Co. as assistant to the vice-president and contracting manager at Chicago, a position he held until 1906, when he was appointed western division contracting manager. The deceased was a member of the American Society of Civil Engineers.

Ports up the Columbia River in both Oregon (Portland and Astoria) and Washington (Vancouver) are covered in a 239-page publication prepared by the War Department Board of Engineers for Rivers and Harbors, in cooperation with the Shipping Board Bureau of Research. This forms Port Series No. 11 and is illustrated by numerous half-tones and maps and contains a large amount of tabular matter covering the port facilities and the use which has been made of them in past years.

Of nearly 1000 industrial standards so far approved in Germany, 60 per cent represent standards dealing with the machine industry, according to the American Engineering Standards Committee. The remaining 40 per cent are divided among civil and electrical engineering and the locomotive and automotive industries. Copies of these standards are sold in Germany for approximately ten cents apiece.

Orders received by the General Electric Co. for the three months ended June 30 amounted to \$66,468,992, compared with \$71,219,934 for that period in 1924, a decrease of 7 per cent. For the six months of the present year, orders totaled \$150,315,228, compared with \$144,707,887 for the first half of 1924, an increase of 4 per cent.

COAL RATES NOT LOWERED

Pittsburgh Coal Operators Fail to Get Reduction on Lake Coal

WASHINGTON, July 28.—Rates on lake cargo coal from fields in Pennsylvania, Ohio, Maryland, West Virginia, Virginia, Kentucky and Tennessee, are to remain unchanged as a result of the action last week of the Interstate Commerce Commission in dismissing the complaint instituted by the Pittsburgh Coal Producers Association and others in an effort to get reduced rates from the Pittsburgh and eastern Ohio fields and to have minimum rates established from West Virginia and other competitive fields.

In making its report, the majority of the commission held that the present rates on Lake cargo coal from the Pittsburgh, Ohio No. 8 and Cambridge fields are reasonable and that rates from the other districts are not unduly preferential. The existing depressed condition of mines in the Pittsburgh and other districts employing union labor has been attributed both to the alleged unreasonable rates from these fields to Lake Erie ports and also to the higher wages commanded by miners in these fields. The rates from the Pittsburgh, Ohio No. 8, Cambridge, and Fairmont to the Lake ports, are \$1.66, \$1.63, \$1.63, and \$1.81 respectively. The rate from the Fairmont district of northern West Virginia consequently is 15c. over Pittsburgh.

The complainants had asked for a rate of \$1.26 from Pittsburgh and \$1.23 from No. 8 district. Dissents were written by Commissioners Eastman and Lewis. Commissioner Eastman said that in his judgment the record amply justified the conclusion that the rates from the complaining districts were too high and should be reduced.

To whatever extent empty coal cars are utilized for the return movement of ore the complainants claimed that the entire benefit should be reflected in their lake cargo coal rates, "thus necessarily excluding all other traffic from that benefit." The commission report says the record does not show to what extent the movement of ore from the ports is confined to the season of open navigation. It also declares that not all coal cars are suitable for the return movement of ore.

Technical Papers for the Steel Treaters' Convention

A partial list of the technical papers to be presented at the annual convention of the American Society for Steel Treating at Cleveland, Sept. 14 to 18, follows:

"Effect of Cold-Work on Endurance and Other Properties of Metals," by D. J. McAdam, Jr., metallurgist U. S. Naval Engineering Experiment Station, Annapolis, Md.

"What Happens When Metal Fails by Fatigue," by Prof. H. F. Moore, University of Illinois, Urbana, Ill.

"Cold Burning Equipment for Industrial Furnaces," by W. H. Mawhinney, engineering department Tate-Jones & Co., Pittsburgh.

"Effect of Reheat on Cold Drawn Bars," by S. C. Spalding, metallurgist Halcomb Steel Co., Syracuse, N. Y.

"Welding Steel Tubing and Sheet with Chrome Molybdenum Welding Wire," by F. T. Sisco and H. W. Boulton, metallurgist and test engineer, engineering division, Air Service, War Department, McCook Field, Dayton, Ohio.

"Graphitization at Constant Temperature," by H. A. Schwartz, manager of research National Malleable & Steel Castings Co., Cleveland.

"Dimensional Changes on Tempering and Ageing Tool Steel," by Howard Scott, research department, Westinghouse Electric & Mfg. Co., Pittsburgh.

"Report Relating to the Effect of Mass on the Quenching of Steels," by H. J. French, physicist Bureau of Standards, Washington.

"Comparative Slow-Bend and Impact Notched Bar Tests on Some Metals," by S. N. Petrenko, Bureau of Standards, Washington.

"Why Cast Iron and Steel Cracks and Warps," by John F. Keller, engineering extension specialist, Purdue University, Lafayette, Ind.

"Rates and Diffusion of Metals," by D. J. Dem-

arest, professor of metallurgy Ohio State University, Columbus.

"On the Nature of Certain Low-Tungsten Tool Steels," by M. A. Grossmann, metallurgical engineer United Alloy Steel Corp., Canton, Ohio, and E. C. Bain, metallurgist Union Carbide & Carbon Research Laboratories, Long Island City, N. Y.

"The Chemical Composition of Tool Steels," by J. P. Gill, metallurgist Vanadium-Alloys Steel Co., Latrobe, Pa.

"An Experimental Investigation of Effects of Overheating on the Physical Properties of Certain Alloy Forging Steels," by Lieutenants Duell and Franks, U. S. Army.

"Carburization by Solid Cements," by W. E. Day, Jr., metallurgist International Motor Co., New Brunswick, N. J.

"Irregular Carburization—Its Causes and Prevention," by W. J. Merten, materials and process engineering department, Westinghouse Electric & Mfg. Co., East Pittsburgh.

"Alloy Steels for Engineering Purposes," by B. D. Saklatwalla, vice-president, and H. T. Chandler, Vanadium Corporation of America, Bridgeville, Pa.

"Magnet Steels," by J. R. Adams, superintendent, research department, Midvale Co., Nicetown, Philadelphia.

A special session is to be devoted to the manufacture of steel at which four papers will be read. One will deal with the relation of the total amount of steel heat treated to the quantity produced. The other three will discuss the basic open-hearth, the acid open-hearth and the electric furnace processes.

Notable Blooming Mill

(Concluded from page 271)

The mill tables have cast steel side frames of box section. The table rollers are 18 in. diameter and of cast steel, of hollow section, except the rollers in front of the manipulators and in the mill housings, which are solid forged steel. The table roller gears and line shaft gears run in oil and the roller bearings and line shaft bearings are self-oiling, all in accordance with latest modern practice.

Figs. 2 and 3 show sectional elevation through mill and pinion housings and also sectional elevations through the manipulators and tables. The manipulators are electrically driven. The mill will be driven by a motor of 7000 hp. continuous rating at 50 deg. Cent. temperature rise and will be capable of delivering 1,600,000 lb. torque at 1 ft. radius for each ingot. The principal product of this mill will be 7 in. x 9 in. to 12 in. x 15 in. axle blooms, 12 in. to 24 in. beam shapes and slabs up to 40 in. wide. The standard size ingot will be 25 in. x 30 in. weighing 16,000 lbs. The mill will be provided with seven four-hole soaking pits, 7 ft. 6 in. x 6 ft. 6 in. x 9 ft. 4 in. deep.

Weight of the Mill

This mill caused considerable discussion at the meeting at which the paper was presented. F. C. Biggert, president United Engineering & Foundry Co., Pittsburgh, gave the following figures for its weight in pounds:

Mill proper	1,510,000
Mill table	1,065,000
Manipulators	1,150,000
Total	3,725,000
Roll changing gear.....	204,000
Entire weight	3,929,000

In the discussion the point was raised whether the use of so large a mill, with its great investment cost, was justified when a mill of one-quarter the weight could turn out one-half the hourly tonnage and might possibly in a year, with its ups and downs of business, produce as much tonnage as the big mill described.

The number of hoists ordered in June as compared with May, according to the records of the Electric Hoist Manufacturers Association showed a decrease of 4.3 per cent. There was a decrease in value of hoists ordered of 17.4 per cent as compared with the previous month. Hoist shipments increased 6.9 per cent.

Machinery Markets and News of the Works

MORE CHEERFUL TONE

Machine Tool Markets Reflect Optimism for Remainder of Year

Mid-Summer Business Is Fairly Good and Inquiries Promise Greater Activity

IN the railroad, automobile and agricultural implement industries there is quite a bit of interest in machine tools and the outlook, judging both from orders and inquiries, is encouraging to the machine tool trade. The excellent crop prospects in the Middle West have stimulated demand for agricultural machinery and in turn the implement makers have become interested in new shop equipment. Makers of stationary gas engines, a Chicago report shows, are very busy and have been purchasing tools.

The automotive industry in and around Detroit is placing orders and figuring on a large quantity of machine tool equipment, the governing consideration being

the desire of automobile makers to reduce further their operating costs. The Hudson Motor Car Co., Detroit, has bought a round lot of equipment and more is pending. Price competition on automobile parts is resulting in new interest from the parts manufacturers in machines that will cut costs. Dodge Brothers, Inc., has announced an expansion program and will undoubtedly buy a good deal of equipment later in the year.

Improved outlook in the iron and steel industry has quickened the demand for machine tools at Pittsburgh and the number of prospective orders in that district reaches a fairly sizable aggregate.

Railroad orders have given some companies a very fair total of business in July, better in fact than was expected. The Mobile & Ohio business went largely to builders in the Cincinnati district. The Chesapeake & Ohio Railroad has bought several radia drills and the Nickel Plate has closed for a few machines.

Distribution of orders for about \$30,000 worth of tools has been decided upon by the Chicago Board of Education and authorization for the purchase will probably be made at a board meeting Aug. 5.

New York

NEW YORK, July 28.

AUTOMOBILE companies were the principal buyers of the week. The Paige Detroit Motor Car Co., Detroit, placed an order with a New England company for 10 deep-hole drilling machines. The Pierce-Arrow Motor Car Co., Buffalo, bought a 30-in. profiling machine. Orders of the International Motor Co., Plainfield, N. J., for 10 miscellaneous machines for replacement were given out during the week. The Ferracuta Machine Co., Bridgeton, N. J., ordered a 6-ft. horizontal boring and drilling machine. July machine tool business is considerably better than usual mid-summer buying and there is a feeling of hopefulness that the remaining months of the year will show a larger volume than the year to date.

The State of New York, Bureau of Canals, Department of Public Works, will receive bids up to Aug. 7 at Barge Canal Terminal, Syracuse, N. Y., for the construction of four steel dump scows, 25 x 100 ft.

The Fairchild-Caminez Engine Corporation, 270 West Thirty-eighth Street, New York, has been organized with \$75,000 capital to manufacture airplane engines. It has not been decided whether a plant will be built but the engines are now being made by contract. Mr. Caminez for several years has designed engines at McCook Field for the Government.

The Newark Pen Co., 130 West Forty-second Street, New York, has been organized to manufacture pens. It has a factory at Newark, N. J., now in operation. C. I. Prouty is president.

The City Island Ship Yards, Inc., City Island, New York, has awarded a general contract to George Hollenweger, 213 Washington Avenue, New Rochelle, N. Y., for a two-story machine shop and mold loft, 45 x 160 ft., for which plans were prepared by Harry Koerner, 83 Fairfield Avenue, Bridgeport, Conn., architect.

Edward I. Shire, 373 Fourth Avenue, New York, architect, has plans for a three-story and basement automobile service, repair and garage building, 100 x 125 ft., to cost \$200,000 with equipment.

The Aeolian Co., 29 West Forty-second Street, New York, has concluded arrangements for the purchase of the factory of the Hallett & Davis Piano Co., Neponset, Mass.,

with buildings totaling 300,000 sq. ft. The new owner will take possession early in 1926 and will remodel and install additional equipment. The company has work in progress on an addition to its plant at Garwood, N. J., to cost \$100,000 with equipment.

The Knickerbocker Ice Co., 45 East Forty-second Street, New York, has awarded contract to the Wigton-Abbott Corporation, 552 West Twenty-third Street, for a one-story addition to its plant at Flushing, L. I., 120 x 148 ft., to cost \$175,000 with equipment. Charles S. Small is president.

The A. H. Grebe Co., Jamaica, L. I., manufacturer of radio equipment, has work under way on an addition to cost more than \$60,000 with machinery.

The Keystone Equipment Co., 1947 Broadway, New York, has inquiries out for a number of jack-hammers operated by compressed air; also for a quantity of standard well casing, 12, 14, 15 and 16 in. diameter.

A one-story power plant will be constructed at the proposed three-story laundry for the Lenox Laundry Co., 23 North Third Street, Mount Vernon, estimated to cost \$150,000. Francisco & Jacobus, 511 Fifth Avenue, New York, are architects and engineers.

Fire last week damaged a portion of the foundry of the Richmond Hill Foundry Co., 127th Street and Ninety-first Avenue, Richmond Hill, L. I. An official estimate of loss has not been announced.

Hammill & Gillespie, Inc., 240 Front Street, New York, producer of clays, mineral products, etc., has acquired property at Carteret, N. J., formerly used by the Interocean Oil Co., and plans the erection of a new plant to cost \$50,000, with grinding, pulverizing, conveying and other equipment. The company has disposed of its plant at Stamford, Conn., to the Stamford Gas & Electric Co., and proposes to remove certain machinery to the Carteret site.

Charles Fall, 1400 Washington Street, Hoboken, N. J., architect, has completed plans for a one-story automobile service, repair and garage building, 200 x 200 ft., to cost approximately \$170,000 with equipment.

The International Motor Co., 25 Broadway, New York, manufacturer of motor trucks, has awarded a general contract to Stone & Webster, Inc., for a new plant in the vicinity of New Brunswick, N. J., estimated to cost \$225,000 with equipment. The company has work under way on a new plant in the Thomson Hill section, Long Island City, to cost approximately \$100,000.

The Borough Council, Beach Haven, N. J., will make extensions and improvements in its municipal electric light

and power plant to cost \$35,000, and will issue notes in such amount.

The Edison Portland Cement Co., New Village, N. J., has awarded contract to the Public Service Production Co., Terminal Building, Newark, N. J., for three one-story, and one two-story additions, to cost \$100,000 with equipment.

New England

Boston, July 27.

THE purchase of a large gear shaper, costing approximately \$30,000, by a Worcester, Mass., shop was the outstanding feature in an otherwise colorless machine tool market the past week. Manufacturers who have had lists out for some time apparently are no nearer buying than when quotations were first asked. New prospects are few and there is the same tendency, as noted before, to have the machine tool house take one or more obsolete tools in part payment for new purchases. July will probably go down in the local machine tool industry as the quietest month in the history of the business.

There is, however, a certain amount of activity in machine tools, but it centers in the various auction sales, and dealers are not conspicuous at these events. At the auction sale of the Harley Co., Springfield, Mass., drop forgings, last week, so far as could be ascertained, there was but one machinery dealer present with the intention of buying. He was from Bridgeport, Conn., and bought a comparatively small amount of equipment. New England users of machine tools, on the other hand, were numerous and bought freely, paying prices for tools not guaranteed far in excess of those quoted on similar guaranteed equipment by dealers.

The E. T. Ryan Iron Works, Inc., Allston, Boston, is enlarging its plant. Riveting equipment has been purchased and the firm is interested in other metal working tools.

The business of the Home Accessories Corporation, Worcester, Mass., which has factories at 51 Jackson Street and 53 Gardner Street, for the manufacture of bathroom and kitchen accessories, has been taken over by a new Massachusetts corporation, the Home Accessories Co., which is controlled by Strabo V. Claggett & Co., bankers, Boston and New York, and financed by them to give an increased capital. It is planned to conduct the business on a larger scale. The officers are: President and general manager, David C. Lash, formerly with the General Electric Co. and recently president and general manager of the President Suspender Co., Shirley, Mass.; vice-president and sales manager, Walter Enoch, founder of the business; treasurer, Guy George Gabrielson, of the firm of Lawrence Scudder & Co., New York. The other directors are George F. Booth, Worcester, and Strabo V. Claggett, Boston.

The Turner Falls Power & Electric Co., 387 Main Street, Springfield, Mass., has awarded a contract for a coal trestle at Chicopee, Mass., for which handling equipment is needed.

Foundations are in for a one-story, 55 x 100 ft. forge shop for the General Electric Co., West Lynn, Mass. Superstructure and equipment specifications are being figured. Plans are private.

The Narragansett Electric Light Co., Eddy Street, Providence, R. I., has awarded a contract for a power plant, pipe and boiler house, for which equipment is needed. Jenks & Ballou, 72 Weybosset Street, Providence, are the engineers.

Plans are ready for a two-story, 140 x 290 ft. garage and repair shop to be erected by L. S. Kaufman, 43 Tremont Street, Boston. George Nelson Jacobs, 4 Park Street, Boston, is the architect.

The American Danger Signal Co., Worcester, Mass., has been organized to manufacture as indicated. It is now in production. H. Dexter is one of the principals.

John C. Michaud, head of the John C. Michaud Co., 22 East Court Street, Springfield, Mass., has awarded a general contract to William J. Wells, Springfield, for a one-story plant, 30 x 140 ft., at West Springfield for the manufacture of drying apparatus.

The Board of Education, Worcester, Mass., has taken out a permit for erection of a five-story trade school at 25 Prescott Street to cost about \$100,000, for which a general contract has been let to the E. P. Pitfield Co., Worcester.

C. F. Springfield, 50 Concord Street, Boston, architect, has plans for a two-story automobile service, repair and garage building, 110 x 225 ft., Malden, Mass., to cost \$175,000 with equipment.

The Androscoggin Water Power Co., Brunswick, Me., recently formed as a subsidiary of the Pejepscot Paper Co., with local mill, is disposing of a bond issue of \$1,500,000, a

portion of the proceeds to be used in connection with proposed hydroelectric power development in this district. The new company has taken over the water power sites previously held by the parent organization.

The Rosemary Coated Paper Co., Holyoke, Mass., is negotiating for the purchase of the local mill and business of the Whitmore Mfg. Co., manufacturer of cardboard specialties, now operated by Russell L. Davenport, receiver. The purchasing company proposes to operate the plant as a branch mill.

Brown & Von Beren, 185 Church Street, New Haven, Conn., architects, have completed plans for a three-story automobile service, repair and garage building, 80 x 100 ft., at High and Crown Streets, to cost \$150,000 with equipment.

Sevigne, Pearl et Cie, Windsor, Vt., recently organized to manufacture special processed papers, have taken over a local building, for the establishment of a plant. Equipment will be installed and operations begun at an early date. The company is headed by Henri Sevigne, Nashua, N. H.; A. Y. and Harold Pearl, both of Dover, N. H.

The Sanborn Co., 1048 Commonwealth Avenue, Boston, manufacturer of surgical instruments, is arranging for the removal of its plant to Cambridge, Mass., where increased facilities will be provided.

The Morse Body Co., Inc., Howard Street, Watertown, Mass., manufacturer of automobile bodies, has filed plans for a one-story addition.

The Spencer Turbine Co., Hartford, Conn., will enlarge its plant on New Park Avenue by the erection of a two-story building.

Philadelphia

PHILADELPHIA, July 27.

WORK will begin on extensions and improvements in the plant of the Pure Oil Co., Lafayette Building, Philadelphia, at Marcus Hook, Pa., including storage and distributing facilities, pumping plant, and other structures to cost \$250,000 with equipment. Headquarters of the company are at Columbus, Ohio.

The Pennsylvania Railroad Co., Philadelphia, has authorized the construction of a new engine house, with facilities for locomotive repairs, at East Altoona, Pa. It is expected to break ground in the fall. It will also make extensions in its yard at Dillerville, Pa., with the installation of additional switching and classification facilities.

John Galbraith, 619 Commerce Street, Philadelphia, manufacturer of wooden boxes and containers, has awarded contract to Schaeffer & Co., Otis Building, for a one-story plant, 36 x 124 ft., to cost \$60,000 with equipment. Wager Fisher, Otis Building, is architect and engineer.

The Pioneer Storage Battery Co., 244 North Fifteenth Street, Philadelphia, is planning for the early occupancy of a new plant at 1341-47 Brandywine Street, for the manufacture of electric batteries and kindred specialties. The present works will be removed to the new location and additional equipment installed. Michael Marks is president.

W. L. Charr, 1001 Chestnut Street, Philadelphia, architect, has plans for a two-story automobile service, repair and garage building, 40 x 125 ft., to cost \$75,000.

The Philadelphia & Reading Co., Reading Terminal, Philadelphia, has filed plans for superstructure for a one-story car repair shop at Reading, Pa., 88 x 335 ft., estimated to cost \$800,000 with machinery. Contract has been let to the Hughes-Foulkrod Co., Commonwealth Building, Philadelphia. It will also erect a new coaling station to cost about \$175,000, at the same location, electrically-operated, as well as a new storehouse and distributing plant, and other structures. Bids are being taken for a new hoist house at Twenty-ninth and Brown Streets, Philadelphia, for which plans were drawn by Samuel T. Wagner, company engineer.

The Philadelphia Tidewater Terminal, 10 Chestnut Street, Philadelphia, is arranging for its proposed lumber terminal at the foot of Oregon Avenue, fronting on the Delaware River. The project will cost in excess of \$500,000 with equipment. Machinery for unloading, conveying and other service will be installed. Harvey C. Miller is president.

The East End Lumber Co., Shamokin, Pa., is considering rebuilding the portion of its planing mill and plant destroyed by fire July 23, with loss estimated at \$200,000 including equipment.

The Board of Education, Canadensis, Pa., is considering the installation of manual training equipment in its proposed two-story and basement high school, estimated to cost \$100,000, for which it is expected to ask bids on a general contract at an early date. Lacey & Rinker, Henry Building, East Stroudsburg, Pa., are architects.

The Crane Market

INQUIRY is light, both for locomotive and overhead traveling cranes and the total of business placed during the past week would be small except for the fact that on the Pacific Coast, the Long Bell Lumber Co. in California is understood to have awarded about \$200,000 worth of cranes to the Milwaukee Crane & Engineering Co. A contract that is expected to involve the purchase of a few cranes is the building of railroad shops for the Florida East Coast Railroad, awarded to the Foundation Co. The present contract involves the expenditure of about \$1,000,000. The inquiry of the Phoenix Utility Co., 71 Broadway, New York, for a 5-ton monorail crane and a 5-ton standard overhead crane is still open. Interest in used locomotive cranes is apparently active, but few purchases of either new or used equipment are reported in this field.

The past week has been fairly active in the Pittsburgh district with awards of about 17 cranes reported. Among these was a list of six cranes bought by the Carnegie Steel Co. for its Homestead works and inquiries current were increased by a further list of six cranes issued by the Carnegie Steel Co. for the same works. The company is expected to close on another crane for the Duquesne works soon.

Among recent purchases are:

Cann & Saul Steel Co., Philadelphia, a 10-ton, 52-ft. 9-in. span, 3-motor, overhead crane from Alfred Box & Co.

Atlantic Mills, Stottville, N. Y., an 8-ton, 21-ft. 2-in. hand power crane from Alfred Box & Co.

Minnesota & Ontario Paper Co., International Falls, Minn., a 25-ton locomotive crane from the American Hoist & Derrick Co.

Standard Lumber Co., Birmingham, Ala., a 25-ton locomotive crane from the American Hoist & Derrick Co.

Dwight P. Robinson & Co., New York, a 20-ton hand power crane for the Duquesne Light Co. from the Northern Engineering Works.

Monongahela Railway Co., Pittsburgh, a 10-ton traveling electric hoist for a 120-ton crane, from an Eastern builder.

James H. Harnden Co., Brooklyn, N. Y., a 10-ton electric traveling crane, from an unnamed builder.

E. L. Phillips & Co., 50 Church Street, New York, an 8-ton electric traveling crane for the Long Island Lighting Co., Northport, L. I., reported closed.

Carnegie Steel Co., Pittsburgh, three 15-ton, 64-ft. span and three 15-ton, 78-ft. span, double drum cranes for the shipping yard at Homestead, Pa., from the Alliance Machine Co.

Koppers Co., Pittsburgh, a 5-ton, 68-ft. 4-in. span, two 36-ft. 6-in. and one 43-ft. 6-in. span hand power cranes, two 3-motor bucket cranes and a 15-ton, 3-line bucket trolley for the by-product plant of the Jones & Laughlin Steel Corporation, Woodlawn, Pa., from the Cleveland Crane & Engineering Co.

Lorain Steel Co., Johnstown, Pa., a 10-ton, 71-ft. 8-in. span, 3-motor mill type crane from the Cleveland Crane & Engineering Co.

Standard Seamless Tube Co., Economy, Pa., a 5-ton, 76-ft. 11½-in. span crane from the Cleveland Crane & Engineering Co.

Allegheny Steel Co., Brackenridge, Pa., a 15-ton, 75-ft. span crane from Manning, Maxwell & Moore, Shaw Electric Crane works.

Chesapeake & Ohio, a 15-ton electric overhead traveling crane for shops at Russell, Ky., from Manning, Maxwell & Moore, Shaw Electric Crane works.

The General Die Casting Co., Reading, Pa., has acquired a tract of 3 acres of land for proposed additions. The company completed the initial unit of a projected three-unit plant, to provide a gross floor space of about 250,000 sq. ft. It is planned to begin work on another unit at an early date.

The Carlisle Paper Box Co., Carlisle, Pa., will build a new plant to replace its factory recently destroyed by fire, with loss of about \$75,000 including machinery. The company has leased a building for a temporary factory, pending completion of new structure.

The Board of Education, Reading, Pa., plans the installation of manual training equipment in the proposed Cosmopolitan senior high school, estimated to cost \$1,500,000, for which a general contract has been let to Michael Melody & Sons, Forty-eighth and Fairmont Streets, Philadelphia.

Horace T. Potts & Co., East Erie Avenue and D Street, Philadelphia, are in the market for the following used machines: Shear for rapid cutting of concrete bars up to ¼ in. diameter, power bending machine for concrete bars, and shearing machinery for structural shapes with a capacity up to 20 in. beams.

Acme Frost Proof Closet Mfg. Co., 3-9 North Central Avenue, Baltimore, recently incorporated, is a reorganization of an established firm. Production is to be increased considerably and additional equipment will be installed. J. E. Marshall is secretary.

The Gray Instrument Co., 64 West Johnson Street, Germantown, Philadelphia, will build a new office building, for which plans have been made but awards have not been let. J. G. Gray is president.

The Bryden-Neverslip Co., Catasauqua, Pa., is in the market for a roll lathe, suitable for turning rolls 12 to 14 in. in diameter and with bed 14 to 18 ft. long.

Plant and equipment of the Fleetwood Metal Body Co., Fleetwood, Berks Co., Pa., has been acquired by the Fisher Body Corporation, together with adjacent properties which have been secured for expansion.

The N. C. Gressman Co., Drexel Building, Philadelphia, is inquiring for 8 and 9-in. extra heavy wrought pipe in exact length of 15½ ft.

operate a cement mill at Tampa, Fla. Plans are in progress for the initial unit, with an annual capacity of 2,500,000 bbl. The works will include a power house and machine shop and are estimated to cost \$5,000,000. The Cowham Engineering Co., Chicago, is engineer.

The Florida East Coast Railway Co., St. Augustine, Fla., has awarded a general contract to the Foundation Co., New York, for the first unit of its locomotive and car repair shops, to cost \$500,000 with equipment. Battey & Kipp, 123 West Madison Street, Chicago, are engineers.

The Southwestern Gas & Electric Co., Shreveport, La., is disposing of a preferred stock issue to total \$1,834,000, a portion of the proceeds to be used for extensions in power plants and system. Rufus C. Dawes is president.

The Indian River Fertilizer Co., Vero, Fla., recently formed with a capital of \$250,000, has plans for the first unit of new works to cost \$85,000. Howard F. Smith, Vero, is president.

Fire, July 20, destroyed a portion of the plant of the Brewton Veneer Co., Brewton, Ala., with loss reported at \$50,000 including equipment. Rebuilding plans are under consideration.

The Birmingham Engine & Machinery Corporation, Birmingham, has inquiries out for a turret lathe, about 18 to 20 in.

The Putnam County Board of Public Instruction, Palatka, Fla., plans the installation of manual training equipment in the proposed local high school, estimated to cost \$150,000. A special election has been called on Aug. 4, to vote bonds. Mark & Sheftall, Clark Building, Jacksonville, Fla., are architects.

The West Texas Compress & Warehouse Co., Lubbock, Tex., will soon break ground for a cotton compressing plant, to cost \$135,000 with machinery.

The New Orleans Public Service, Inc., New Orleans, is arranging a fund of \$6,600,000 for extensions and betterments in power plants and system, including completion of additions now in progress at the steam-operated electric station on Market Street, with the installation of additional equipment; new power substations to cost \$225,000; purchase of motors, transformers and other equipment to cost \$550,000; extensions in transmission lines, etc.

The Eastern Texas Electric Co., Beaumont, Tex., has plans for the construction of a new steam-operated electric power house at Nederland, Tex. A new ice-manufacturing plant at the same location is also being considered.

The Perry Motor Co., 615 Good Street, Dallas, Tex., has

Gulf States

BIRMINGHAM, July 27.

JOHAN L. SENIOR, president of the Signal Mountain Portland Cement Co., James Building, Chattanooga, Tenn., and associates have organized a company to construct and

leased a two-story service, repair and garage building, 125 x 230 ft., to be erected by L. F. Wilson, 2922 Swiss Avenue, estimated to cost \$160,000. F. F. & C. F. Peterman, Mercantile Bank Building, are architects.

The Brinker Ice Co., Sulphur Springs, Tex., is completing arrangements for the construction of a two-story ice-manufacturing plant, 60 x 115 ft., at Wichita Falls, Tex., to cost approximately \$90,000 with machinery.

The Common Council, Grand Prairie, Tex., plans the installation of pumping equipment in connection with proposed extensions in the municipal waterworks, for which bonds for \$40,000 have been voted. Koch & Fowler, Central Band Building, Dallas, Tex., are engineers.

The Southern Utilities Co., Palatka, Fla., will soon break ground for a new ice-manufacturing plant at Fort Lauderdale, Fla., with an initial output of about 90 tons per day, reported to cost \$75,000 with equipment.

The Welded Products Co., Birmingham, manufacturing oil and gasoline steel tanks, has purchased adjacent property and will double the capacity of its plant.

The Raymond-Clopect Co., Inc., Fort Lauderdale, Fla., has been organized with capital stock of \$75,000 to do a general jobbing and contracting business in builders' hardware and kindred lines. It has secured a building with 13,000 sq. ft. of floor space. Officers are: John A. Raymond, formerly with the Standart Brothers Hardware Corporation, Detroit, for 33 years, president and general manager; Charles Holmes, proprietor of the Arcade Hardware Co., Woodward Avenue, Detroit, vice-president; Frank Clopect, who recently severed his connections with the Aluminum Utensil Co., Manitowoc, Wis., secretary-treasurer.

Buffalo

BUFFALO, July 27.

THE Kennedy Valve Mfg. Co., East Walter Street, Elmira, N. Y., has awarded a general contract to the Lowman Construction Co., 312 Railroad Avenue, for a two-story foundry, 20 x 63 ft. The H. M. Lane Co., Lafayette Building, Detroit, is engineer.

The Kittinger Furniture Co., 1093 Elmwood Avenue, Buffalo, has filed plans for an addition to cost approximately \$45,000 with equipment.

The Iroquois Gas Corporation, Iroquois Building, Buffalo, has arranged a fund of more than \$1,000,000 for construction and development work during the year, including the installation of additional equipment. Two new regulator shops will soon be constructed at 262 Sanders Street and 201 Melrose Street, respectively. Thomas R. Weymouth is president.

The Washburn-Crosby Mfg. Co., Minneapolis, Minn., flour miller, has plans for a new grain elevator on Michigan Street, Buffalo, with the installation of electric power equipment, transmission apparatus, conveying and other machinery, estimated to cost \$225,000.

The Plasterboard Co., Akron, N. Y., contemplates the rebuilding of the portion of its plant recently destroyed by fire with loss of more than \$20,000 including equipment.

The North Buffalo Hardware Foundry Co., 743 Hertel Avenue, Buffalo, has taken out a permit to build a one-story addition.

The New York Central Electric Corporation, Corning, N. Y., has acquired the municipal lighting station at Savona, N. Y., and plans extensions and improvements in its transmission lines and substations.

The Otis Elevator Co., Buffalo, has filed plans for a foundry at 813 Northland Avenue to cost \$40,000 exclusive of equipment. It plans to cast its own iron and steel fittings.

The American Brass Co., Buffalo, will erect a new nickel plating works at 446 Military Road. It will be one-story, of steel and concrete construction and cost about \$35,000.

The U-S-L Radio, Inc., Niagara Falls, N. Y., has been organized to manufacture radio equipment. Manufacturing arrangements have been completed. E. D. Granger is advertising manager.

Nelson Allen, Farmer Syndicate, Inc., Cortland, N. Y., is in the market for a freight elevator about 500 lb. capacity.

The Montgomery Broom Mfg. Co., Grove City, Pa., is in the market for wire bending machinery for a plant under construction.

The Union Charcoal Co., 217 Wayne Street, Olean, N. Y., is in the market for electrically operated charcoal crushing machinery, to replace that recently destroyed by fire.

Pittsburgh

PITTSBURGH, July 27.

INQUIRY for machine tools has improved noticeably in the past week and while no lists are included, the prospective orders reach a fairly sizable aggregate. Single tool sales have been quite numerous, and noting the improved tone of the iron and steel market the trade is inclined to take a cheerful view of prospects for the remainder of the year.

Contract has been awarded by the Whitehill-Gleason Motors, Inc., Baum Boulevard and Euclid Avenue, Pittsburgh, to D. T. Riffe, 1006 Forbes Street, for its three-story service, repair and garage building, 150 x 275-ft., to cost approximately \$250,000 with equipment. M. Nirdlinger, Empire Building, is architect.

The Grasselli Powder Co., Guardian Building, Cleveland, has acquired property at New Castle, Pa., and plans the early erection of a new plant for the manufacture of electric fuses, electric detonators and accessory products.

The Elkland Fire Brick Co., 408 Bank of Commerce Building, Charleston, W. Va., recently organized, is arranging a fund of about \$100,000 for its proposed fire brick manufacturing plant in this district. The works will include a power house and machine shop. N. F. Connes is president.

The Crescent Brick Co., New Cumberland, W. Va., has preliminary plans for the erection of new works in the Yellow Creek section for the manufacture of vitrified sewer pipe. A power house and machine shop are included in the plans.

The Pittsburgh Plate Glass Co., Frick Building, Pittsburgh, has plans for a three-story and basement building, 48 x 70-ft., at its works at Creighton, Pa., for which bids will be taken at once on a general contract. H. S. Heichert is chief engineer.

The Board of Education, Erie, Pa., plans the installation of manual training equipment in its new junior high school estimated to cost \$600,000, for which a general contract has been awarded to the Yeager & Sons Construction Co., Danville, Ill.

Detroit

DETROIT, July 27.

TENTATIVE plans are under consideration by the Mid-Lakes Paper Co., St. Joseph, Mich., for an addition to its plant to cost \$75,000 with equipment. F. S. Bickering is general manager.

The Michigan Sheet Metal Works, Lansing, Mich., is having plans drawn for a one-story addition to double, approximately, the present capacity. Considerable additional machinery will be installed. E. B. Harrington is president.

The Board of Education, Jackson, Mich., plans the installation of manual training equipment in its proposed three-story and basement senior high school estimated to cost \$1,250,000, for which bids will be asked on general contract in August. Childs & Smith, 720 North Michigan Avenue, Chicago, are architects.

The Public Lighting Commission, East Atwater Street, Detroit, has filed plans for a three-story and basement automatic power substation, 72 x 95 ft., estimated to cost \$150,000 with equipment.

The Marine City Motor Castings, Marine City, Mich., recently organized, will take over the local plant and business of the McLouth Industries, Inc., manufacturer of automobile parts, castings, etc. The new company has tentative plans for enlargements. George E. Kramer is general manager.

Fire, July 22, destroyed a portion of the plant of the De Poe Boatbuilding Co., Bay City, Mich., with loss estimated at \$100,000 including equipment. Preliminary plans are under consideration for rebuilding. The company has recently been devoting a large part of its output to the production of high-power motorboats.

The Fisher Body Corporation, General Motors Building, Detroit, has closed negotiations for the purchase of the plant and business of the Fleetwood Metal Body Co., Fleetwood, Pa., manufacturer of custom automobile bodies. The Fisher company will continue operations as a new unit and has plans under advisement for expansion.

The Bennett Pump Corporation, Muskegon, Mich., has begun the erection of two one-story additions for considerable increase in capacity, estimated to cost \$45,000 with equipment.

The Board of Education, Manistee, Mich., is considering the installation of manual training equipment in its pro-

posed three-story high school in the Sands Park section estimated to cost \$250,000, for which bids will be asked soon on a general contract. J. N. Churchill, Prudden Building, Lansing, Mich., is architect.

Dodge Brothers, Inc., Detroit, has begun work on an expansion program, to include the erection of a group of eight new multi-story buildings, to provide a total floor area of about 750,000 sq. ft., and an increase in production from 1100 to 1500 complete cars per day. It is expected to have five of the new buildings, completed by the end of the year. The entire expansion will cost approximately \$7,500,000, with machinery.

The Board of Genesee County Road Commissioners, Court House, Flint, Mich., is planning the erection of a two-story automobile service, repair and garage building, 62 x 145 ft., for county cars and motor trucks, to cost \$50,000 with equipment. John Mackenzie, Genesee Bank Building, is architect.

The Electric Bean Grader Products Co., Ithaca, Mich., has been organized to manufacture bean sorting equipment and other scientific instruments. Operations have been started. C. A. Peabody is president and J. E. Wasson, secretary.

Cincinnati

CINCINNATI, July 27.

LOCAL machine tool builders were among successful bidders for a considerable portion of the requirements of the Mobile & Ohio Railroad. Several companies received orders for engine lathes, while other plants booked radial drills and milling machines. The Mobile & Ohio also placed orders for engine lathes, a 100-ton bushing press, several planers, a 36-44-in. side-head boring mill and a 90-in. journal turning lathe with the Niles-Bement-Pond Co. The Chesapeake & Ohio is reported to have purchased radial drills from a local builder.

Business during July has been better than many companies had expected, although not equal to the volume attained in June. Planer manufacturers are fairly busy although orders have slumped in the past few weeks. The Cincinnati Planer Co. has booked two 30-in. planers for delivery to a buyer in the New York territory. Inquiries are not as brisk as they were. Lathe manufacturers have experienced a considerable increase in activities. Pending inquiries are numerous, including machines for companies in the light and power field, as well as for buyers in the general industrial field. Milling machine operations have slackened to some extent, although still of sizable proportions. Sales of boring mills and turret lathes have decreased, but the decline is expected to be only temporary. Shaper manufacturers report fairly good business, while radial and up-right drill manufacturers' bookings during July will fall only a little short of the aggregate volume reached in June.

The Inland Mfg. Co., Dayton, Ohio, contemplates the erection of a factory addition for the manufacture of metal products.

The Superior Gas Engine Co., 1401 Sheridan Road, Springfield, Ohio, contemplates the erection of a two-story and basement factory, 58 x 324 ft. P. J. Shovlin is president.

The Eureka Tool & Die Works, 35 St. Clair Street, Dayton, Ohio, has awarded a general contract to the John Boren & Sons Co., Dayton, for a one-story and part basement factory.

The Dayton Fabricated Steel Co., East Monument Avenue, Dayton, Ohio, has been incorporated with \$15,000 capital stock to fabricate doors, steel sash, fire escapes, grates, etc. Work is being completed on a plant and some equipment has been purchased. William H. Ortman is president.

C. L. Harrison, 1602 First National Bank Building, Cincinnati, will erect a one-story plant at 1525-27 West Sixth Street, for the manufacture of metal specialties. A general contract has been awarded to W. T. Beck, 215 East Second Street.

The F. K. Boggs Co., First and Jefferson Streets, Dayton, Ohio, is considering the erection of a two-story and basement automobile service, repair and garage building, to cost \$85,000 with equipment.

The International Agricultural Corporation, 61 Broadway, New York, has acquired the plant of the Tupelo Fertilizer Co., Memphis, Tenn., idle for about three years. The new owner will take immediate possession and install additional equipment and make other improvements.

C. S. Steward & Son, 501 Battery Place, Chattanooga, Tenn., are considering the establishment of a plant for the

manufacture of radio equipment. It is proposed to lease an existing building.

The Mills Equipment Co., Chattanooga, Tenn., machinery dealer, has inquiries out for a three-drum hoist, electric-operated, with swinger and accessories, and for a number of all-steel hopper bottom coal cars, each 10-ton capacity, 36-in. gage.

Mills Brothers, Greeneville, Tenn., will soon break ground for a one-story plant, 56 x 100 ft., with power house, for the manufacture of general millwork products.

The Timmins Foundry Co., 608 West High Street, Lexington, Ky., William Timmins, president, is said to be completing plans for the removal of its foundry at Winchester, Ky., to Lexington, where the capacity will be increased.

Chicago

CHICAGO, July 27.

THE machine tool trade looks forward to greater activity on the part of industrial buyers, particularly the farm equipment manufacturers. Business in agricultural machinery has been steadily increasing and prospects for the coming year or two are said to be very promising. Makers of stationary gas engines, especially Diesel engines, are very busy and have been purchasing some machine tool equipment. The A. O. Smith Corporation, Milwaukee, recently closed for a double end turning lathe for its rear axle housing department and also contemplates entering the market for equipment for the manufacture of septic tanks. The International Harvester Co. recently ordered a gate shear and is in the market for special equipment for its Fort Wayne, Ind., plant. An Ohio manufacturer of gas engines has purchased a used horizontal boring, drilling and milling machine from a local machine tool house. The Aetna Ball Bearing Co., Chicago, has purchased a 400-ton coining press.

The distribution of the Chicago Board of Education school list has been decided upon and awaits approval of the board at its next meeting, August 5. Action came too late for consideration at the board meeting last week. The purchases will total approximately \$30,000. No new railroad buying is reported, but the Rock Island has entered the market for a twist drill grinder, and a horizontal punch. The Illinois Central has issued inquiries for the following machines for Sioux City, Iowa:

One hand-power combination punch and shear, with capacity to shear and punch up to $\frac{3}{8}$ -in. boiler plate material.

One nominal size 30-in. engine lathe, with not less than 34-in. swing by 18-ft. bed, arranged for direct-connected motor drive.

One nominal size 32-in. heavy duty crank shaper, arranged for direct-connected motor drive.

One combination double head grinder for grinding twist drills up to 2-in. and for similar miscellaneous work, arranged for direct-connected motor drive.

The Commonwealth Edison Co., 72 West Adams Street, Chicago, has awarded a contract for a one-story substation, 70 x 76 ft., 11632-38 Front Street, to cost \$75,000.

John and Steve Karowsky, wood carvers, 2339-41 Greenview Avenue, Chicago, have awarded a contract for a four-story factory addition, 42 x 70 ft., to cost \$15,000.

The Blake Specialty Co., manufacturer of castings, Rock Island, Ill., has started work on a plant addition to house a shipping room, to cost \$5,000. Within a few months it is planned to construct another addition to cost \$25,000, which will be occupied by a brass foundry.

The factory of the H. D. Conkey Co., Mendota, Ill., was recently damaged by fire.

The Illinois Power & Light Corporation has started the construction of a power plant at Venice, Ill., to cost \$2,000,000, which will duplicate the present plant there.

The Perfection Battery Co., 2300 South LaSalle Street, Chicago, manufacturer of automobile and radio batteries, has moved its plant and offices to larger quarters at 4203-7 Cottage Grove Avenue.

The Evans Auto Machine Works, Fourth and Cherokee Streets, Leavenworth, Kan., has started the erection of a new machine shop, 36 x 75 ft., at 419-23 South Fifth Street.

A Government oil and gas shale experimental station, to cost \$90,000, will be located two miles southwest of

Rulison, Colo., and construction is expected to start shortly.

The H. W. Caldwell & Sons Co., 1700 South Western Avenue, Chicago, manufacturer of conveying and elevating machinery, etc., has plans for a one-story steam-operated power house at 2430 West Eighteenth Street, to cost about \$200,000 with equipment. Moore & Nealy, 219 East Superior Street, are engineers.

The Elgin Wind Pump & Motor Co., 75 North State Street, Elgin, Ill., has awarded a general contract to the Illinois Hydraulic Stone & Construction Co., Elgin, for its three-story and basement addition, 36 x 48 ft., to cost \$35,000. George M. Peck is president.

The Iowa Southern Utilities Co., Burlington, Iowa, is disposing of a bond issue of \$3,000,000, a portion of the proceeds to be used for extensions in power plants and system.

The Board of Education, Falls City, Neb., plans the installation of manual training equipment in its proposed three-story and basement senior high school, estimated to cost \$250,000, for which it is expected to ask bids on a general contract in August. Fiske, Meginnis & Schaumburg, Bankers' Life Building, Lincoln, Neb., are architects.

Continuing its expansion program, the Maytag Co., Newton, Iowa, manufacturer of electric washing machines, etc., is planning for a one-story foundry addition, 175 x 200 ft., for which it will ask bids on a general contract in August. Henry Raeder, 20 West Jackson Boulevard, Chicago, is architect. F. L. Maytag is president.

The Chicago, Milwaukee & St. Paul Railroad Co., St. Paul, Minn., has plans for a one-story power plant at its works on the Terrace Road, estimated to cost \$30,000.

The Board of Education, Waverly, Iowa, plans the installation of manual training equipment in its proposed three-story high school for which bids are being asked on a general contract. H. B. Burr, Commercial Bank Building, Waterloo, Iowa, is architect.

The Northern Nebraska Power Co., Hebron, Neb., is completing plans for a hydroelectric generating station in the vicinity of O'Neil, Neb., to cost approximately \$750,000, including transmission lines.

Cleveland

CLEVELAND, July 27.

THE Detroit automotive industry is placing and figuring on a large amount of machine tool equipment, practically all special single purpose machines for production work. The Hudson Motor Car Co. bought considerable equipment the past few days and has a round lot still pending. Price competition on automobile parts is resulting in considerable activity among manufacturers who are coming into the market for special production machinery that will enable them to further reduce manufacturing costs. Dodge Brothers, Inc. has announced a large plant extension program and is expected to buy considerable machinery equipment later in the year.

Cleveland machine tool manufacturers are getting a fair amount of business, mostly in single machines or small lots. However, some report that July sales will not quite equal June. Trade with local dealers is rather slow as there is not much activity in this immediate territory. The Nickel Plate Railroad has placed a No. 3 center drive axle lathe and a 36-44 side head milling machine for its Clover Leaf shops at Frankfort, Ind. The Marion Steam Shovel Co., Marion, Ohio, bought an 18-ft. boring machine. The Cleveland Milling Machine Co. has sold a 26-in. planer to the American Steel & Wire Co. and also received an order from Detroit for a 36-in. planer. A local manufacturer of automatic screw machines booked an order during the week for five machines for shipment to England.

Steiner Brothers, manufacturers of tools, jigs and fixtures, Lima, Ohio, have bought a vertical surface grinder, two shapers, a vertical milling machine and an electric heat treating furnace.

The Defiance Screw Machine Products Co., Defiance, Ohio, has been organized as specialist in large screw machine work from bar, forging or casting. S. Thompson is president, treasurer and general manager, and C. A. Fessel, secretary.

Cyril J. Bath & Co., 6900 Machinery Avenue, Cleveland, are inquiring for a planer 48-in. x 48-in. x 16-ft.

The Sterling Brass Co., 9600 St. Catherine Avenue, Cleveland, manufacturer of electric automotive appliances, radio and other equipment, is taking bids on a two-story and basement factory and warehouse, 40 x 285-ft. Allen Sogg, 3030 Euclid Avenue, is the architect and engineer.

The Cleveland Electric Illuminating Co., which has commenced the erection of a \$30,000,000 steam power house at Avon, Ohio, has asked for bids on various work in connection with the new plant. Equipment that will be required includes two turbo generators, four boilers, various power plant accessories, coal handling and ash handling equipment, motors, fans and conveyors, etc. E. J. Cook, Illuminating Building, is the company engineer.

John Rutkowski, president Cleveland Structural Steel Co., 6600 Park Avenue, will erect a one-story and basement foundry, 75 x 120-ft., to be occupied by the Diamond Bronze Co., 5415 Brow Avenue.

The Cleveland Toilet Supply Co., 2139 East Eighteenth Street, Cleveland, is taking bids on a two-story and basement office and factory building, 70 x 125-ft. E. P. Shupe is secretary.

Indiana

INDIANAPOLIS, July 27.

PLANS are being prepared for a one-story factory, 50 x 133 ft., for the Kokomo Brass Co., Kokomo, Ind. Oscar Cook, Citizens' Bank Building, is architect.

Joseph Blasey, 304 American Central Life Building, Indianapolis, is desirous of getting in touch with manufacturers of wooden mallets suitable for stonemasons' use.

The Ames Shovel & Tool Co., Anderson, Ind., is said to be arranging to ask bids in the fall on a general contract for a one-story addition to cost \$50,000 with equipment. E. R. Miller, Farmers' Trust Building, is architect.

Paul Burkle, Indianapolis, has leased property at 3407 North Capitol Avenue, for a new battery charging and repair shop.

The Board of School Trustees, Greencastle, Ind., will install vocational training equipment in its proposed new school, estimated to cost \$90,000, for which bids are being asked on a general contract until Aug. 1. McGuire & Shook, Indiana Pythian Building, Indianapolis, are architects.

Warren Sample, Muncie, Ind., care of the Warner Corporation, has plans for a one-story machine shop, 50 x 150 ft., to cost \$20,000 with equipment.

The Board of Commissioners, Court House, Lafayette, Ind., will ask bids in August for the construction of an addition to its steam power plant, estimated to cost \$40,000 with equipment. R. W. Noland, Lafayette Life Building, is engineer.

The Spiraway Mfg. Co., Anderson, Ind., manufacturer of toys, has plans for a new one-story factory, 80 x 125 ft., to cost approximately \$20,000 with equipment. W. H. Forse, Jr., is president.

McCarty & Hamilton, Indianapolis, have leased property at 610 Beecher Street, and will establish a plant for the manufacture of airplanes and parts, with department for assembling.

The Board of School Trustees, Terre Haute, Ind., will establish a manual training department in its proposed new one-story high school addition at Thirteenth and Locust Streets, estimated to cost \$70,000. Johnson, Miller, Miller & Yeager, 30 North Fifth Street, are architects. A portion of the structure will be equipped for machine and automobile repair works.

St. Louis

ST. LOUIS, July 27.

WORK will begin early in the fall on the proposed hydroelectric power development on the Osage River, near Bagnell, Mo., for the Missouri Hydroelectric Power Co., care of Walter Cravens, Twelfth Floor, Land Bank Building, Kansas City, Mo., president, with initial installation to approximate 30,000 hp. A transmission line will be constructed. The entire project is estimated to cost \$10,000,000. The Clark E. Jacoby Engineering Co., Interstate Building, Kansas City, Mo., is engineer.

Fire, July 16, damaged a portion of the refinery of the Houston Oil & Refining Co., Camden, Ark., with loss of \$100,000 including equipment. It is proposed to rebuild.

The Board of Public Service, St. Louis, will soon take bids for a three-story steam power plant on Clark Avenue, estimated to cost \$850,000 with equipment. L. R. Bowen, City Hall, is architect and engineer.

Fire, July 18, destroyed a portion of the plant of the St. Louis Architectural Iron Co., 1970 De Kalb Street, St. Louis, with loss reported at \$30,000 including equipment. Rebuilding is under consideration.

The Cuthbert Cut Stone Co. has plans for a two-story

and basement works, 100 x 125 ft., to cost approximately \$75,000. Erection will begin at once by day labor.

J. S. Price, town clerk, Okemah, Okla., is asking bids until Aug. 7 for pumping equipment, 50,000-gal. capacity and 250,000-gal. capacity elevated steel tanks and towers, transmission equipment, and accessory apparatus, for the municipal waterworks. V. V. Long & Co., Colcord Building, Oklahoma City, Okla., are engineers.

The Pure Oil Co., Muskogee, Okla., will rebuild the portion of its storage and distributing plant, destroyed by fire July 18 with loss reported at \$75,000.

The Oklahoma Natural Gas Co., 1606 South Newport Street, Tulsa, Okla., is said to have plans under way for the construction of a pipe line, with compressor stations, etc., in Osage County, estimated to cost \$750,000. Improvements in existing plants are also planned. R. C. Sharp is vice-president.

The Board of Education, Arkansas City, Kan., is having plans drawn for a manual training shop in connection with other extensions in the junior high school. T. W. Williamson & Co., Central National Bank Building, Topeka, Kan., are architects.

The Derby Oil Co., Russell, Kan., has work under way on a new oil refinery, to be equipped for a capacity of about 2500 bbl. per day.

The Lustre Co., Inc., Twentieth and Obea Streets, St. Louis, has been incorporated with \$14,000 capital stock to manufacture plating and polishing supplies and equipment and has completed installation of equipment. It will use large quantities of sheets and mill end remnants. L. D. Sommers is president and J. E. Huber, secretary-treasurer.

South Atlantic States

BALTIMORE, July 27.

THE Aircraft Development Corporation, Detroit, recently formed by Henry Ford and his son, Edsel B. Ford, Detroit, is reported to be considering the establishment of a plant at Curtis Bay, Baltimore, for the manufacture of commercial metal airplanes and parts. It is said that an existing plant will be taken over, remodeled and equipped.

The Norfolk & Western Railway Co., Clyde Cooke, purchasing agent, room 351, N. & W. Railway Building, Roanoke, Va., will receive bids until Aug. 5, for 1,000,000 tie dating nails, contract serial No. AA366.

The Standard Chilled Castings Co., Foundry Turnpike, Lynchburg, Va., will rebuild its plant recently destroyed by fire. It will cost close to \$40,000 including equipment.

The Atlantic Coast Line Railway Co., Market Street, Wilmington, N. C., has awarded a general contract to J. M. Lawton & Co., Florence, S. C., for an addition to its Florence engine house and locomotive repair shops, to cost \$75,000.

The Worth Steel Co., Claymont, Del., will soon award contracts for an addition to cost close to \$50,000.

W. G. James, 37 Bollingbrook Street, Petersburg, Va., has inquiries out for equipment for enameling iron, particularly iron bedsteads and kindred products.

The Home Ice Plant, Tryon, N. C., operated by John L. and M. B. Jackson, plans the construction of a one-story ice-manufacturing plant, 35 x 85 ft., to cost about \$30,000 with equipment.

John Freund, 1307 St. Paul Street, Baltimore, architect, has awarded a general contract to the Price Construction Co., Maryland Trust Building, for a three-story automobile service, repair and garage building to cost \$80,000 with equipment.

The general purchasing officer, Panama Canal, Washington, is taking bids until Aug. 13 for water pump, fire pump, valve reseating machines, nipple-cutting machines, electric welding outfits, air compressors, motors, wire rope, grindstones, shovels, chain bolts, screws and other equipment. Panama Circular 1684.

The Hagerstown Equipment Co., Hagerstown, Md., is in the market for a quantity of cast iron bell and spigot pipe, 4, 6 and 8 in. diameter, standard lengths.

The Savannah Sugar Refinery Co., Savannah Bank & Trust Building, Savannah, Ga., plans the immediate erection of a new building at its Port Wentworth refinery to cost approximately \$50,000.

Ovens, power equipment, conveying and other machinery will be installed in the proposed two-story and basement plant, 86 x 136 ft., to be erected by E. H. and W. H. Kooster, 634-52 Lexington Street, Baltimore, estimated to cost \$100,000. The work will include an automobile service, repair and garage building for company cars. J. Freund, 1307 St. Paul Street, is architect.

The Hackley Morrison Co., Inc., 1708 Lewis Street, Richmond, Va., machinery dealer, has inquiries out for a precision tool and cutter grinder, external type, Le Blond or equal manufacture. A small band saw; one pile hammer, steam-operated, 2500-lb. capacity; one wood-turning lathe; one 200-hp. motor, three-phase, 60-cycle, 2200 volts; one 6-ton electric locomotive, 36-in. gage, 30 to 33 in. high, with trolley, 30 to 36-in. wheel base, including reel and cable attachment, and for a quantity of laundry equipment.

The City Council, Pulaski, Va., is said to be planning for the installation of pumping equipment in connection with proposed extensions and improvements in the municipal waterworks, for which bonds in amount of \$100,000 have been approved.

P. E. Leverett, East Point, Ga., has inquiries out for a hydraulic ram, Gould type, with accessory apparatus.

The Board of Trustees, Centralized High School District, Blacksburg, S. C., plans the installation of manual training equipment in its proposed two-story high school estimated to cost \$100,000, for which plans will be drawn by Willis Irvin, Lamar Building, Augusta, Ga., architect.

Ovens, power equipment, conveying and other machinery will be installed in the two-story and basement plant to be erected by the Southern Bakery Co., Greensboro, N. C., estimated to cost \$200,000, for which a contract has been let to the J. A. Jones Construction Co., Walker Avenue.

Milwaukee

MILWAUKEE, July 27.

THE machine-tool market continues spotty, and while no ground is being lost in the volume of sales, gains are infrequent. Prospects of an improved demand from automotive industries are being fulfilled, but it consists mainly of replacement business. This is true of nearly all other lines, which apparently have adequate capacity to handle the business on books, and are seeking efficiency and economy in production. General sentiment in business is growing better.

The Northwest Engineering Co., Green Bay, Wis., with sales offices at 838 Steger Building, Chicago, has awarded contracts for a machine shop and assembling floor addition, costing about \$75,000. The new capacity is required particularly to meet the increasing demand for crawler type cranes for industrial purposes.

The Standard Sheet Metal Works, 1485 Thirtieth Street, Milwaukee, will build a one-story addition, 75 x 120 ft., and has placed the general contract with Byrne Brothers, 3110 Burleigh Street. The company specializes in the manufacture of portable houses and other buildings. John G. Mattes is president.

E. A. Winke, Portage, Wis., let the general contract to John Allmendinger, Benton Harbor, Mich., for a two-story addition to his garage, sales and service building, 78 x 100 ft., costing about \$40,000 with equipment. B. A. Phillips, 514 Lawrence Street, Madison, Wis., is architect.

The Rib Mountain Granite Co., Wausau, Wis., a new \$30,000 corporation, will soon be in the market for quarrying equipment, cutting and polishing machinery and other motor-driven tools for a new plant to be established in the town of Maine, Marathon County. The principals are Rudolph Golz, John A. Nelson, August Rehnstrom, Robert Baumann and Edward Baumann.

The Standard Foundry Co., 1600 Kewaunee Street, Racine, Wis., which is undertaking a general plant replacement program, has let the contract for the erection of the first unit, a core-room building, 90 x 220 ft., of brick and steel, to Nelson & Co., Inc., James Block, Racine. Contracts for other units will be let as rapidly as plans are completed by A. Wickland & Co., architects and engineers, 5 South Wabash Avenue, Chicago. The entire work will cost about \$250,000.

The Menasha, Wis., Common Council is considering the installation of an additional generating unit costing about \$45,000. Within the past 18 months a Diesel type unit was installed and the plant reconstructed at a cost of \$100,000, but additional capacity is already required and the contemplated improvement will be made before the close of this year. N. G. Rimmel is mayor.

The Page Milk Co., Merrill, Wis., is in the market for equipment and steam generating units for a new \$150,000 milk condensery, 60 x 140 ft., two stories, with a separate power plant, 40 x 42 ft. The general contractor is C. G. Torkelson, local. George L. Gilkey is secretary and manager.

Among the items of equipment to be purchased for the

new municipal service building of the city of Milwaukee are a 24-in. swing, 10 to 12 ft., motor-driven lathe; a 20 to 24-in. shaper; a 5-ton steam hammer; a 3-hp. electric grinder, pedestal type, and air compressor and other tools. The complete list probably will not be available for 30 or 60 days. R. E. Stoelting is commissioner of public works.

Pacific Coast

SAN FRANCISCO, July 22.

PLANS are being completed by the Mechanical Pattern Works, 1001 Stanford Street, Los Angeles, for a one-story foundry and pattern shop at Vernon, Cal.

The Union Ice Co., San Francisco, is planning the construction of a one-story ice-manufacturing plant at Colusa, Cal., to cost \$50,000. It is expected to break ground early in the fall.

The Western Pipe & Steel Co., South San Francisco, has engaged W. W. Breite, Clunie Building, engineer, to prepare plans for a group of one-story buildings, with main unit, 90 x 1500 ft., to cost \$850,000 with equipment.

The Richfield Oil Co., Bartlett Building, Los Angeles, is arranging an expansion program to cost \$5,000,000, including a new storage and distributing plant in the vicinity of Long Beach, oil compounding plant at Los Angeles, marine terminal and other structures.

Fire, July 15, destroyed a portion of the foundry and pattern shops of the Commercial Iron Works, Union Avenue and Stephens Street, Portland, with loss estimated at \$25,000 including equipment. It is planned to rebuild.

The Weber Show Case & Fixture Co., East Slauson Avenue, Los Angeles, is completing plans for a one-story addition, 80 x 82 ft. Hamm & Grant, Inc., Ferguson Building, is architect.

The Western Silica Co., Yakima, Wash., has tentative plans for rebuilding the portion of its plant destroyed by fire July 17, with loss reported at \$40,000 including equipment.

The Pacific Gas & Electric Co., 245 Market Street, San Francisco, has plans for a one-story power house at Humboldt and Maryland Streets, to cost \$65,000.

The Pasadena Ice Co., Pasadena, Cal., will soon begin the construction of a two-story cold storage and refrigerating plant, 88 x 155 ft., with foundations designed for a four-story structure, the additional stories to be built later. It will cost about \$125,000. Hamm & Grant, Inc., Ferguson Building, Los Angeles, is architect.

The Board of City Trustees, Burbank, Cal., has authorized the installation of a 150-hp. pumping engine at the municipal pumping plant on Magnolia Avenue. A. J. Rose, city engineer, is in charge.

The Pacific Pipe & Supply Co., Los Angeles, will ask bids about the middle of August for erection of its proposed plant at San Bernardino, Cal., consisting of a main one-story unit, 70 x 280 ft., with loading platform, 30 x 260 ft., and auxiliary structures, estimated to cost \$40,000. Howard E. Jones, 445 Fourth Street, San Bernardino, is architect.

The Hecla Mining Co., Wallace, Idaho, will soon break ground for an addition to its concentrating plant at Gem, Idaho, with the installation of milling, grinding, electric power and other equipment, reported to cost \$100,000.

Plans are being made by the engineering department of the Standard Sanitary Mfg. Co., 1000 Bryant Street, San Francisco, for a plant to be constructed in the Bay District at an estimated cost of \$1,000,000.

Canada

TORONTO, July 27.

A SLIGHT falling off in machine tool sales was reported the past week. In many cases buyers appear to be awaiting the passing of the vacation season before making further purchases. The automotive industry is busy and appears to have secured a new lease of life as a result of the re-establishment of the McKenna duties in Great Britain, and machine tool dealers and builders are reaping some benefit. Several small railroad car orders were awarded during the week and there is also a fair demand for single tools from various car shops.

The Canadian Paperboard Co., Ltd., 2 Seigneurs Street, Montreal, is having plans prepared for the erection of a power house at Frankford, Ont. Kerry & Chiace, Confederation Life Building, Toronto, are engineers.

Preliminary work on the Chute and Caron power develop-

ments at Chicoutimi, Que., will start next month. The project will be undertaken by the Aluminum Co. of America and its subsidiary the Canadian Mfg. & Development Co., through the Chute & Caron Development Co. of Quebec. J. B. Duke, of the Duke-Price Power Co., and C. E. Davies of the Aluminum company, are interested.

The Cobalt Contact Mines, Cobalt, Ont., is installing machinery on its Red Rock and Law properties and proposes to build a 50-ton mill before winter. J. Dunlop is manager.

The Lake Shore Mines, Kirkland Lake, Ont., will install a large crusher plant.

The Paymaster Mine, South Porcupine, Ont., will start work at once on the construction of a new mill.

The March Gold, Inc., mine at South Porcupine, Ont., contemplates installing a new mill. J. C. Roche of Buffalo, N. Y., is managing director.

The machine and molding shops of the Windsor Foundry & Machine Co., Windsor, Ont., were destroyed by fire which started in the machine shop and spread to other parts of the plant.

The Arrow Refining Co., Lewiston, Mont., will start work soon on the erection of a 2000 bbl. oil refinery at Coutts, Alta.

Foreign

THE Swedish Chamber of Commerce of the United States of America, 2 Broadway, New York, has received an inquiry (172) from a company in Sweden desiring to get in touch with American manufacturers of wood-carving tools.

The American Chamber of Commerce in France, 32 Rue Taitbout, Paris, France, has received an inquiry from a Franco-Spanish railroad company (C. 3088) desiring to get in contact with American manufacturers of railroad track materials.

The Tokio Electric Corporation, Tokio, Japan, is arranging for a bond issue of \$20,000,000 to be sold in the United States by the Guaranty Co., New York, and associated interests, the proceeds to be used in part for extensions and improvements in power plants and system.

The Government of Brazil, Rio de Janeiro, has contracted for the construction of an iron and steel furnace, foundry and other buildings for a plant in a Brazilian city, location of which is just being decided. Information at the office of the Bureau of Foreign Domestic Commerce, Washington (Reference No. 174754), and at the American Consulate, Rio de Janeiro, General A. Gaulin is consul.

Trade Changes

The Thomson Electric Welding Co., Lynn, Mass., manufacturer of electric welding machines, has discontinued selling arrangements with the Stoer Machinery Co., Philadelphia, in which territory it now has a direct representative, William T. Ober, 2006 Market Street.

The Hoopes & Townsend Co., Philadelphia, manufacturer of rivets, studs, etc., has disposed of its factory buildings at 1312-30 Buttonwood Street, on a site 115 x 308 ft., to the *Philadelphia Inquirer*.

The Whalen Machinery Co., Bourse Building, Philadelphia, has taken over the railroad sales of the North American Mfg. Co., Cleveland, manufacturer of burners and blowers for gas fuel oil for industrial uses.

The Bridgeport Brass Co., Bridgeport, Conn., has appointed the E. F. Keating Co., 452 Water Street, New York, to handle the sale of Plumrite brass pipe in that district. The Keating Co. has a plant at Hartford, for fabricating pipe and tubing of iron, steel, brass and copper. This new company is known as the E. F. Keating Pipe Bending & Supply Co.

The Boiler & Tank Sales Corporation, 429 Wayne Street, Detroit, has been organized to act as manufacturers' agent for boilers, tanks and other power plant equipment.

The Bain-Beaird Co., Shreveport, La., recently incorporated, will continue the business of a partnership which was operated during the last six years as machinist, doing general machine boiler and tank work and structural steel and ornamental iron work. H. H. Bain and J. B. Beaird are the principals.

The Gaynor Electric Co., Bridgeport, Conn., recently incorporated, is the outgrowth of the Gaynor Mfg. Co., of which Joseph Gaynor is president and treasurer and Edwin Gaynor, secretary.

The Todd Oil Burner & Engineering Corporation is now located in new quarters at the foot of Twenty-third Street, Brooklyn, N. Y.

The Goodman Electric Machinery Co., 126 Green Street, Newark, N. J., is the new name of the business formerly known as M. D. Goodman. It is equipped to repair in its

own shops and also to rent arc welders, spot welders, electric hoists, and lifting magnets, as well as to buy and sell this class of equipment.

The National Enameling & Stamping Co., Granite City, Ill., has appointed the General Sales Corporation with headquarters at 718 Mission Street, San Francisco, and branch offices at 350 East First Street, Los Angeles, and Terminal Sales Building, Seattle, Wash., as Pacific Coast representative.

The Chicago Fuse Mfg. Co., Chicago, manufacturer of Union and Gem fuses and Union outlet and Gem switch boxes, has moved its Philadelphia office from the Weightman Building to 517 Packard Building.

Batcheller & Kneen, consulting engineers, have opened offices in rooms 929-930 Dexter Horton Building, Seattle. W. T. Batcheller has specialized for several years in power development and industrial power application, and C. H. Kneen in production, plant layout and industrial management.

B. F. Easterbrooks, 248 Central Building, Seattle, has taken the sales agency in the Pacific Northwest for the products of the Robins Conveying Belt Co., New York, in connection with any type of installation requiring belts, conveyors, bucket elevators, stocking bridges, loading towers, car dumpers, crushing machinery and screens. Earle R. Walker, formerly in the estimating department of the H. Koppers Co., Pittsburgh, is now associated with Mr. Easterbrooks as consulting engineer.

The Lincoln Electric Co., Cleveland, has appointed Whitman & Brandt, Atlanta, Ga., as distributors of its line of electric welders and motors in Georgia. The Clyde Equipment Co. with offices at Seattle, Wash., and Portland, Ore., will distribute Lincoln products in Washington, Oregon and Idaho. Both distributors will carry the Lincoln products in stock.

After negotiations extending over several months, the Transue-Williams Steel Forging Corporation has acquired the business of the Weldless Rolled Ring Co. of Cleveland. Operations in the new department will start in about a month.

Industrial News Notes

The Fremont Aluminum Castings Co., Fremont, Ohio, has purchased the property of the Holtz Foundry & Mfg. Co., and organized with capital stock of \$25,000 to produce aluminum, brass and bronze castings, automotive radiator fans and special machine work. E. J. O'Farrell, who has been in the foundry business for several years, is one of the principals, and associated with him is P. A. Gaynor, previously sales manager of the Bryan Pattern & Machine Co., Bryan, Ohio.

The Barber-Greene Co., Aurora, Ill., has completed an addition to its building which will be used by the designing and engineering departments, the extension supplying space for 12 more engineers.

Robert M. Falkenau, industrial and financial counselor, has established offices at 30 East Forty-second Street, New York.

Stockholders of the Bishop & Babcock Co., Cleveland, have voted to sell the plant to a new company that will be organized under the name of Bishop & Babcock Mfg. Co. Among those interested in the new company are A. G. Bean, president General Phonograph Co., Elyria, Ohio; Walter C. White, president White Motor Co., Cleveland, and Walter Teagle, president Standard Oil Co. of New Jersey. The Bishop & Babcock Co. manufactures soda fountain equipment, heating equipment and other products.

The Arrow Iron Works, 84 Verona Street, Brooklyn, N. Y., has been reorganized and a new company formed under the name Arrowhead Iron & Steel Works. It is engaged in ornamental and light structural iron work and will be sole distributor in Brooklyn and Long Island City for Mesker Brothers, St. Louis, steel sash products. V. W. DeMois is secretary.

The Gray Instrument Co., 64-70 West Johnson Street, Germantown, Philadelphia, recently incorporated, is a continuation of Queen & Co. and the Queen-Gray Co. Business will be carried on at the plant formerly occupied by these firms. J. G. Gray is president.

The Steam Motor Vehicle Co. of America, Newton, Mass., formerly the Stanley Motor Co., plans to move West. Its real estate and plant, including 12 separate units with an aggregate of 112,000 sq. ft. floor space, have been sold.

The Charles C. Lewis Co., Springfield, Mass., dealer in mill supplies and heavy hardware, has leased for ten years building No. 8, Maywood Street, from the Eastern States Warehouse & Cold Storage Co.

The Snell Mfg. Co., Fiskdale, Mass., maker of auger and bits, has gone on a five-day per week operating schedule.

Previous to the plant's closing July 3 for annual vacations, it was operated on a four-day schedule.

Industrial Finances

The Republic Iron & Steel Company reports net profits for the quarter ended June 30 of \$1,167,050 after Federal taxes, depreciation, etc. After dividends, there remained a surplus for the period of \$402,806. Unfilled orders on hand of finished and semi-finished material on June 30, were 102,320 tons compared with 140,055 tons on March 31.

Net income of the Harbison Walker Refractories Co. for the second quarter was \$803,000 after all charges, including depreciation and taxes. For the six months ended June 30 net income amounted to \$1,534,000.

The Ludlum Steel Co. reports net income for the five months ended May 31 of \$164,817 after depreciation, interest, amortization and reserve for taxes. This compares with \$144,975 in the same period of 1924. Net income in May was \$32,378 against \$24,568 in May, 1924. Current assets as of May 31 were \$2,401,375 and current liabilities, \$206,611.

The Vanadium Corporation of America has declared a quarterly dividend of 50c. per share. This is a resumption of dividends after a suspension of four years, the last previous payment having been Jan. 15, 1921. The corporation reports net income for the six months ended June 30 of approximately \$733,000 after charges, compared with \$429,419 in the same period a year ago.

Carroll Sprigg, master commissioner of the Barney & Smith Car Co., Dayton, Ohio, has filed a report in Common Pleas Court, Dayton, showing that a total of \$452,732 has been received from the sale of the company's property.

The Acme Steel Co., Chicago, showed an increase of 16 per cent in shipments during the first half of this year over the corresponding period in 1924. Net profits, after all interest and taxes and depreciation, were \$775,927. As the company is carrying on an extensive construction program, no change in the dividend rate was made by the board of directors.

Othniel Hitch, Indianapolis, attorney, has been appointed receiver of the Stevenson Gear Co., 1019 Cornell Avenue, Indianapolis, upon complaint by William S. Frye, a stockholder and creditor. The appointment of a receiver was withheld for several days pending efforts of officers of the company to borrow money to finance the company. A receivership of several months was terminated in November, 1924.

The American Sash Weight Foundry Co., Davenport, Iowa, which has been idle since November, 1924, has been declared bankrupt.

The Lundell-Eckberg Mfg. Co., Market Street, Jamestown, N. Y., manufacturer of metal window screens, frames and specialties, has increased its capital stock from \$100,000 to \$200,000 to provide for expansion.

Net profits of the Midland Steel Products Co. for the second quarter were \$762,013, after interest, depreciation and Federal taxes. This compares with \$372,465 in the corresponding period of 1924. Net for the first six months of 1925 was \$1,418,373.

The Gulf States Steel Co. reports net profits in the second quarter of \$171,445, after taxes, depreciation, etc. This compared with \$187,041 in the June quarter of 1924. Net profits for the first six months of 1925 were \$567,793, compared with \$542,789 in the first half of 1924.

Net profits of the Transue & Williams Steel Forging Corporation for the six months ended June 30 were \$33,665 after taxes and charges, compared with \$100,173 in the first half of 1924.

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Current Metal Prices

On Small Lots, Delivered from Merchants' Stocks, New York City

The following quotations are made by New York City warehouses.

As there are many consumers whose requirements are not sufficiently heavy to warrant their placing orders with manufacturers for shipments in carload lots from mills, these prices are given for their convenience.

On a number of items the base price only is given, it being impossible to name every size.

The wholesale prices at which large lots are sold by manufacturers for direct shipment from mills are given in the market reports appearing in a preceding part of THE IRON AGE, under the general headings of "Iron and Steel Markets" and "Non-Ferrous Metals."

Bars, Shapes and Plates		Per Lb.
Bars:		
Refined iron bars, base price.....	3.24c.	
Swedish charcoal iron bars, base....	7.00c. to 7.25c.	
Soft steel bars, base price.....	3.24c.	
Hoops, base price.....	4.49c.	
Bands, base price.....	3.99c.	
Beams and channels, angles and tees, 3 in. x ¼ in. and larger, base.....	3.34c.	
Channels, angles and tees under 3 in. x ¼ in. base.....	3.24c.	
Steel plates, ¼ in. and heavier.....	3.34c.	
Merchant Steel		
Tire, 1½ x ½ in. and larger.....	3.30c.	
(Smooth finish, 1 to 2½ x ¼ in. and larger).....	3.65c.	
Toe-calk, ½ x ¾ in. and larger.....	4.20c.	
Cold-rolled strip, soft and quarter hard.....	7.00c.	
Open-hearth spring steel.....	4.50c. to 7.00c.	
Shafting and Screw Stock:		
Rounds and hex.....	4.00c.	
Squares and flats.....	4.50c.	
Standard tool steel, base price.....	15.00c.	
Extra tool steel.....	18.00c.	
Special tool steel.....	23.00c.	
High-speed steel, 18 per cent tungsten.....	70c.	

Sheets		Per Lb.
Blue Annealed		
No. 10.....	3.89c.	
No. 12.....	3.94c.	
No. 14.....	3.99c.	
No. 16.....	4.09c.	
Box Annealed—Black		
	Soft Steel	Blued Stove
	C. R. One Pass	Pipe Sheet
	Per Lb.	Per Lb.
Nos. 18 to 20.....	3.55c. to 3.95c.	.....
Nos. 22 and 24.....	3.60c. to 4.20c.	4.35c.
No. 26.....	3.65c. to 4.25c.	4.40c.
No. 28*.....	3.75c. to 4.35c.	4.50c.
No. 30.....	3.95c. to 4.55c.	.....

Galvanized		Per Lb.
No. 14.....	3.85c. to 4.45c.	
No. 16.....	4.00c. to 4.60c.	
Nos. 18 and 20.....	4.15c. to 4.75c.	
Nos. 22 and 24.....	4.30c. to 4.90c.	
No. 26.....	4.35c. to 5.05c.	
No. 28*.....	4.75c. to 5.35c.	
No. 30.....	5.25c. to 5.85c.	

*No. 28 lighter, 36 in. wide, 20c. higher per 100 lb.

Welded Pipe		Wrought Iron	
Standard Weld		Black Galv.	
½ in. Butt....	46 29	½ in. Butt....	4 +19
¾ in. Butt....	51 37	¾ in. Butt....	11 + 9
1-3 in. Butt....	53 39	1-1½ in. Butt.	14 + 6
2½-6 in. Lap..	48 35	2-in. Lap....	5 +14
7 & 8 in. Lap..	44 17	3-6 in. Lap..	11 + 6
11 & 12 in. Lap.	37 12	7-12 in. Lap.	3 +16

Bolts and Screws	
Machine bolts, cut thread, 40 and 10 per cent off list	
Carriage bolts, cut thread, 30 and 10 per cent off list	
Coach screws, 40 and 10 per cent off list	
Wood screws, flat head iron,	
72½, 25, 10 and 5 per cent off list	

Steel Wire		Per Lb.
BASE PRICE* ON NO. 9 GAGE AND COARSER		
Bright, basic.....	4.25c.	
Annealed, soft.....	4.50c.	
Galvanized, annealed.....	5.15c.	
Coppered, basic.....	5.15c.	
Tinned, soft Bessemer.....	6.15c.	

*Regular extras for lighter gage.

Brass Sheet, Rod, Tube and Wire	
BASE PRICE	
High brass sheet.....	18½c. to 19½c.
High brass wire.....	19½c. to 20½c.
Brass rods.....	16½c. to 17½c.
Brass tube, brazed.....	26½c. to 27½c.
Brass tube, seamless.....	23½c. to 24½c.
Copper tube, seamless.....	24½c. to 25½c.

Copper Sheets	
Sheet copper, hot rolled, 21¼c. to 22¼c. per lb. base.	
Cold rolled, 14 oz. and heavier, 3c. per lb. advance over hot rolled.	

Tin Plates		Coke—14x20	
Bright Tin		Prime	Seconds
Grade "AAA"	Grade "A"	80 lb... \$6.15	\$5.90
Charcoal 14x20	Charcoal 14x20	90 lb... 6.30	6.05
IC... \$11.25	\$8.85	100 lb... 6.45	6.20
IX... 12.85	10.85	IC... 6.65	6.40
IXX... 14.40	12.55	IX... 7.85	7.60
IXXX... 15.75	13.85	IXX... 9.00	8.75
IXXXX... 17.00	15.05	IXXX... 10.35	10.10
		IXXXX... 11.35	11.10

Terne Plates	
100 lb.	8 lb. coating, 14 x 20 \$7.00 to \$8.00
IC.....	7.25 to 8.25
IX.....	8.25 to 8.75
Fire door stock.....	9.00 to 10.00

Tin	
Straits, pig.....	62c.
Bar.....	63c. to 66c.

Copper	
Lake ingot.....	16½c.
Electrolytic.....	16½c.
Casting.....	16 c.

Spelter and Sheet Zinc	
Western spelter.....	9¼c.
Sheet zinc, No. 9 base, casks.....	12½c., open 13c.

Lead and Solder*	
American pig lead.....	9½c. to 12c.
Bar lead.....	12c.
Solder, ½ and ½ guaranteed.....	40c.
No. 1 solder.....	37c.
Refined solder.....	30½c.

*Prices of solder indicated by private brand vary according to composition.

Babbitt Metal	
Best grade, per lb.....	75c. to 90c.
Commercial grade, per lb.....	35c. to 50c.
Grade D, per lb.....	25c. to 35c.

Antimony	
Asiatic.....	20c. to 21c.

Aluminum	
No. 1 aluminum (guaranteed over 99 per cent pure), in ingots for remelting, per lb.....	38c.

Old Metals	
The undertone of the market is strong, though trading is not so active. Dealers' buying prices are as follows:	

	Cents Per Lb.
Copper, heavy crucible.....	12.00
Copper, heavy wire.....	11.50
Copper, light bottoms.....	9.50
Brass, heavy.....	7.25
Brass, light.....	6.00
Heavy machine composition.....	9.25
No. 1 yellow brass turnings.....	8.25
No. 1 red brass or composition turnings.....	8.50
Lead, heavy.....	7.25
Lead, tea.....	6.00
Zinc.....	4.50
Cast aluminum.....	17.00
Sheet aluminum.....	17.00

